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ARTICLE

The epidemiology of compassion in healthcare: An integrative review of organizational learning strategies

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Abstract: Compassion is a fundamental healthcare principle of effective, ethical healthcare, yet it is increasingly challenged by pressures in modern healthcare systems. The emerging concept of "epidemiology of compassion" aims to understand the distribution and determinants of compassion across health care populations. This review examines organizational learning mechanisms as system-wide instruments to establish and maintain compassionate care in healthcare organizations. The research used an integrative review method to analyze studies from PubMed, DOAJ, and ProQuest databases, which focused on organizational learning and compassion. The research included studies about system-level interventions that developed leadership skills and changed organizational culture and implemented team-based learning and excluded studies that focused on individual training. The thematic synthesis used a six-domain epidemiologic framework to analyze the data while performing a secondary analysis across person, time, and place dimensions. The review found four fundamental organizational learning mechanisms, which included reflective practice, psychological safety, knowledge management, and leadership development spread across six epidemiologic domains: demographic features, personal characteristics, personal history, behavioral routines, contextual factors, and structural systems. Interventions that included shared reflection and co-design practices demonstrated improved structural and cultural integration of compassion practices. The person–time–place analytical framework provided understanding on how these mechanisms function during individual competency development (person) and institutional embedding and sustainability (time) and adaptation to diverse clinical settings (place). The implementation of organizational learning provides a scalable, evidence-based method to embed compassion throughout health systems. The alignment of these mechanisms with public health infrastructure allows compassion to become a system parameter that can be evaluated and designed through policy interventions. Future research should employ pragmatic, real-world, multiple methods and comparative designs appropriate for clinical settings.

Keywords: compassion, healthcare, organizational learning, epidemiology, health systems, system-level intervention, reflective practice, psychological safety

1. Introduction

1.1 Framing compassion as a population-level imperative in healthcare

Compassion in healthcare is a complex construct that extends beyond basic emotional connections. It is described as a response to suffering that involves cognitive understanding and emotional empathy followed by a purposeful intention or action that seeks to alleviate the suffering (Addiss et al., 2022; Gilbert, 2020). According to this definition, compassion differs from

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empathy because it demands both emotional understanding of another person's state as well as intentional efforts to decrease their pain and improve their well-being. Such a perspective is essential for healthcare because suffering reduction remains their fundamental ethical and professional responsibility. In this review, "compassion" refers to the internal emotional and cognitive disposition toward alleviating another's distress, while "compassionate practice" refers to observable clinical behaviors through which that disposition is implemented in healthcare settings.

The value of compassionate care in healthcare organizations is well supported by evidence: for instance, patient care that is founded on compassion leads to clinical outcomes, increased patient satisfaction, reduced healthcare costs, and improved well-being for healthcare staff (Trzeciak & Mazzarelli, 2019; Berwick, Nolan, & Whittington, 2008). Additionally, developing compassion in healthcare organizations, which promote respect, safety, and quality improvement, has been shown to lead to decreased provider burnout. The advantages of compassion in healthcare settings have led to the recognition that compassion should be considered not as an individual trait but as an attribute to be systematically developed across healthcare systems.

In this review the unit of analysis extends beyond individual clinicians to the organizational system levels where compassionate practice is shaped, reinforced, or constrained. While individual traits remain significant, the epidemiology of compassion highlights the importance of organizational factors, as these structures affect the distribution, institutionalization, and sustainability of compassion across healthcare populations. Clarifying these units allows for the conceptualization of compassion here as a structural and cultural aspect of the healthcare system rather than an individual trait.

The concept of an "epidemiology of compassion" offers a framework for examining compassion as a population-level phenomenon. Considering epidemiology's core dimensions of time, place, and person, this approach recognizes that compassion is not distributed evenly, as it tends to form "clusters" across settings and contexts, affecting particular groups of people (Addiss et al., 2022). The perspective shows that compassion is shaped by social, cultural, environmental, and organizational determinants and can be systematically measured, analyzed, and promoted, not unlike public health interventions and prevention strategies. Addiss et al. (2022) propose a risk factor framework for understanding the determinants of compassion, which includes six interconnected domains: (1) demographic features; (2) personal characteristics, such as emotional intelligence and perspective-taking; (3) personal history and experience, including adversity and training; (4) habitual behaviors; (5) contextual factors during compassion encounters; and (6) organizational or structural characteristics, such as leadership, culture, and social support. This review defines contextual factors as the organizational and structural conditions that influence the expression of compassion, which includes workload demands, team culture, hierarchical dynamics, policy environments, and accessible resources.

This framework demonstrates that compassion is not only an individual disposition but is influenced by multiple-level factors, which can be modified by interventions. A population-level understanding of compassion requires epidemiologic methods to develop and expand compassionate practices within healthcare systems through organizational learning strategies. Through this method, healthcare leaders and policymakers can create systemic programs that develop compassionate environments and enhance medical results and decrease care delivery inequalities.

Epidemiology offers a significant disciplinary framework as it examines the distribution of determinants across populations and the influence of structural, organizational, and system-level

outcomes. Compassion is often examined through psychological or interpersonal frameworks; an epidemiological perspective allows the examination of patterns and differences in compassionate practices across diverse situations or groups. This perspective is aligned to the objectives of this review, which underscores the understanding of compassion as a phenomenon shaped by systemic factors such as organizational learning environments and not only as an individual characteristic.

1.2 Knowledge gap in compassion research

The existing research about compassion in healthcare has primarily focused on individual traits and skills and training interventions. This review investigates compassion as a system-conditioned phenomenon, making the concept of scale significant to the analysis. Scale, here, refers to the distribution, adoption, and sustainability of compassionate practice across teams, units, and health care systems. These include practices such as empathy cultivation and perspective-taking and mindfulness-based training, which improve healthcare providers' ability to respond compassionately to patient suffering (Strauss et al., 2016; Trzeciak & Mazzarelli, 2019). These interventions showed benefits for patient outcomes and provider well-being, but they primarily focused on changing individual behavior and did not address the organizational contexts that influence compassionate care delivery. The literature on compassion lacks sufficient integration of systemic or organizational learning approaches and is sparse on research on how to transform individual compassion training into a sustainable transformation in organizational culture. System-level implementation of compassion through leadership development and reflective practice, as well as continuous learning, is necessary to ensure that individual training gains remain consistent and sustainable over time. The current limitation requires population-level epidemiologic research on compassion to study how social determinants and organizational and policy factors affect its distribution and expression. System-level interventions can be developed through this perspective to modify structural risk factors and promote equitable access to compassionate care and scale compassion effectively across diverse healthcare settings (Addiss et al., 2022). In this review, the term "risk factor" is used in line with epidemiological conventions: as determinants of compassion that may either reduce or enhance compassionate behavior depending on how they operate within person, time, and place contexts.

Although some domains of compassion originate at the individual level—for example, personal skills, emotional regulation, or clinician behaviors—their distribution and expression are affected by organizational climate, norms, and structures. These factors appear to influence individual capacity for compassion, which may either allow for or constrain the expression of compassion across settings. Positioning individual expression of compassion within this larger context shows the significance of population-level trends and supports the epidemiological focus of the review.

1.3 Aim of the review

The main objective of this integrative review is to synthesize existing evidence on organizational learning approaches for embedding compassion within healthcare systems. This synthesis operates within an epidemiology of compassion framework, which views compassion as a population-level phenomenon shaped by specific social, organizational, and policy determinants (Addiss et al., 2022). The review analyzes theoretical frameworks, empirical research, and documented implementation challenges. This review aims to explain how organizational learning systematically cultivates compassionate practice in healthcare and guides the

development of evidence-based policies and interventions that support system-wide compassionate environments.

1.4 Research questions

The research questions that guide this integrative review are as follows:

1. How do organizational learning mechanisms support the development and system-level scaling of compassionate practices across health care settings?
2. What theoretical models and empirical evidence demonstrate the effectiveness of organizational learning approaches in promoting compassion in healthcare environments?
3. How can organizational learning strategies be conceptualized and analyzed within an epidemiologic framework that recognizes compassion as a population-level phenomenon shaped by identifiable determinants?

2. Methods

2.1 Review design

The design of this study uses an integrative review approach, which allows systematic synthesis of theoretical and empirical literature from different disciplines, which supports a comprehensive understanding of phenomena that affect individual, organizational, and policy levels (Whittemore & Knafl, 2005). This research method is appropriate for examining the multilevel determinants of compassion in healthcare systems, as it allows the inclusion of diverse study designs and theoretical frameworks.

This review adhered to PRISMA 2020 reporting standards (Page et al., 2021) to guide documentation in the selection process. The PRISMA flow diagram shows identification, screening, eligibility assessment, and inclusion. Screening and data extraction were done by the author following a structured process to maintain consistency.

2.2 Data sources

A comprehensive search strategy was conducted through three electronic databases, which included PubMed, the Directory of Open Access Journals (DOAJ), and the ProQuest Open Access collection. The selected sources provided extensive disciplinary coverage to retrieve empirical and theoretical literature about healthcare systems and nursing and medical education and organizational learning interventions that aim to embed compassion at scale. The search process followed an iterative method, which enabled the improvement of search terms and inclusion criteria to achieve the best possible retrieval of organizational- and system-level interventions.

Record management was conducted manually utilizing Word documents. Screening was conducted by a single reviewer following a structured process to maintain consistency. Data extraction tables were generated in Word for PubMed, DOAJ, and ProQuest open access.

2.3 Search strategy and study selection

Searches were conducted in PubMed, DOAJ, and ProQuest Open Access utilizing Boolean operators and phrase matching, limited to English-language, full-text publications published between July 2015 and July 2025. The same date range was applied across three databases; any indication of differing date limits relates to earlier revisions and has been resolved in the final search strategy. Two foundational narrative medicine commentaries prior to this period were retained due to their theoretical significance in conceptualizing reflective capacity and compassion. The primary search string used across three databases was: (“compassion” OR

"compassionate care") AND ("organizational learning" OR "leadership" OR "service learning" OR "culture change" AND healthcare OR hospital OR "health system").

The PubMed search focused on biomedical and health systems literature through advanced Boolean logic and phrase matching. Different search strategies were employed across databases to accommodate differences in indexing systems, vocabulary, and disciplinary methodology. The DOAJ database, which includes articles in medicine and health sciences, was searched systematically. The ProQuest Open Access platform was also used to find additional scholarly literature by searching through the Health & Medical and Nursing & Allied Health collections. The addition of related terms, including "reflective practice," "service learning," and "organizational culture," to the search improved its relevance.

2.4 Inclusion and exclusion criteria

The review analyzed both empirical research and theoretical papers that studied organizational learning methods for implementing compassion in healthcare facilities. The research included studies that used systems-level approaches through leadership development and cultural transformation and team-based learning and policy-based interventions to promote compassionate practices at scale. This review excluded studies that concentrated on self-compassion interventions and those that provided individual-level training without examining systemic or organizational aspects. The established inclusion and exclusion criteria maintained the synthesis of healthcare system-level interventions while supporting population-level epidemiologic research about compassion development in various organizational settings.

2.5 Data extraction

Data extraction involved the systematic recording of key study characteristics, which included author information, study design and theoretical frameworks, and findings relevant to organizational learning and compassion in healthcare settings. A structured extraction template was used to maintain both consistency and completeness in the data extraction process, as shown in Appendices A–C.

2.6. Data analysis and synthesis

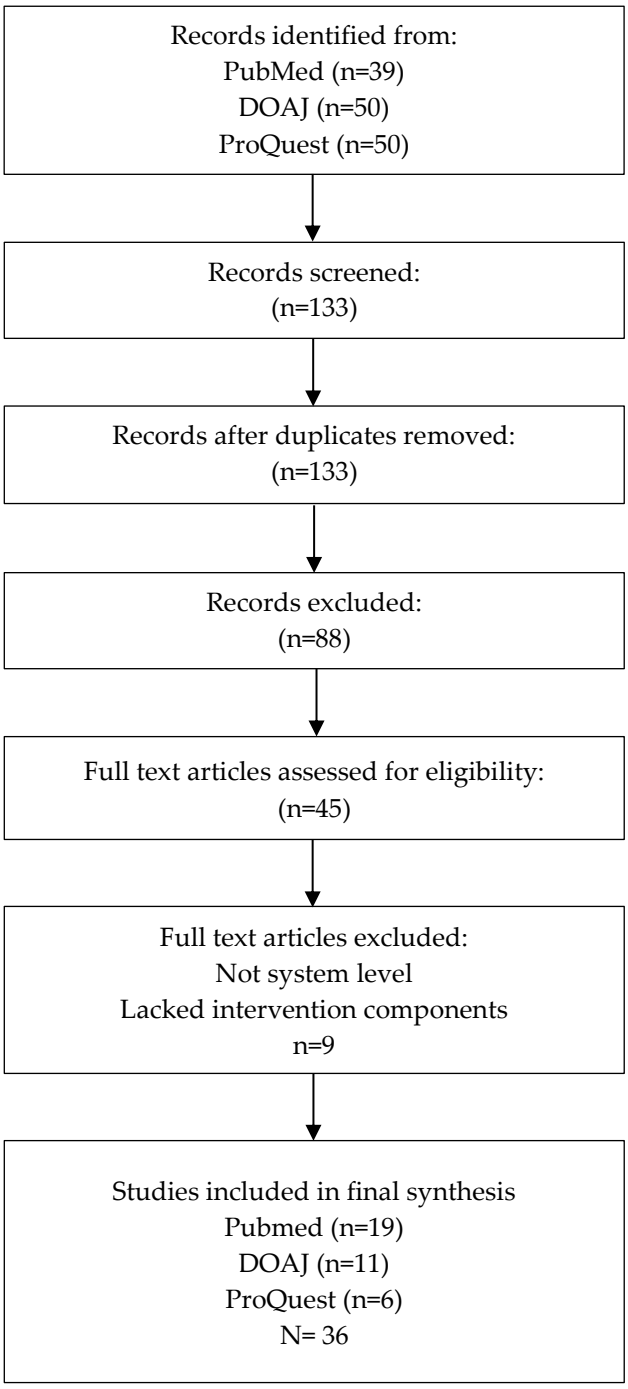
The thematic synthesis was used to identify, compare, and integrate key themes that appeared across different empirical and theoretical sources. Theme development used a deductive methodology, employing organizational learning frameworks—reflective practice, psychological safety, and knowledge management—as an analytical framework for coding and categorizing research findings. The identified themes were mapped to epidemiologic parameters, which included person, time, and place, to show how compassion was influenced and sustained at the population level. The method allowed for nuanced understanding of multi-level determinants and supported the development of system-level implementation.

Each study's findings were aligned with six domains of epidemiology of compassion posited by Addiss (2022). Findings were categorized into a domain when the study's outcomes, constructs, or intervention elements corresponded with the conceptual definition of the domain. When findings involved several domains, they were classified into relevant categories and grouped under the domain that represented the dominant factor in the article.

3. Results

A total of 36 studies satisfied the inclusion criteria and were included in the final synthesis. These studies were sourced from PubMed (n=19), DOAJ (n=11), and ProQuest Open Access (n=6). The literature includes empirical and theoretical publications covering a range of healthcare settings, professional groups, and organizational learning interventions. The search across PubMed, DOAJ, and ProQuest OA databases produced 139 results (39 from PubMed, 50 from DOAJ, and 50 from ProQuest OA).

Figure 1. *Study selection flow diagram*



The title and abstract screening process resulted in 133 unique records after removing duplicate entries. The relevance criteria led to the exclusion of 88 records because they focused on

individual-level training exclusively, were unrelated to healthcare settings, or lacked organizational learning elements. Nine full-text articles were excluded from the analysis because they failed to meet the inclusion criteria by lacking systemic or organizational intervention elements.

3.1 Epidemiology of compassion framework

The epidemiology of compassion framework structures the various elements that affect compassionate healthcare delivery through multiple organizational levels. The framework enabled the researcher to perform deductive coding and categorization of the results through six domain structures. The domains show how roles, training stages, personal attributes, experiences, behavioral patterns, contextual conditions, and organizational structures interact to determine the expression and sustainability of compassion in healthcare systems. The analysis of these domains enables the development of systematic approaches to create interventions and policies that enhance compassion throughout educational, clinical, and organizational environments.

3.1.1 Domain 1: Demographic features

Domain 1 captures the demographic features of healthcare professionals—such as career stage, professional role, and training level—which influence how compassion is expressed and developed. The demographic variables represent the "who," while the interventions they are involved in represent the "what"; both interact to influence compassionate practice. For example, medical students receive narrative medicine workshops and Schwartz Center Rounds, which aim to develop their reflective capacity, communication skills, and empathy (Charon, 2012; Daryazadeh et al., 2020; Gishen et al., 2016). Pakistani postgraduate trainees participate in simulation-based compassion training with debriefing sessions to develop awareness and relational sensitivity in their hierarchical healthcare settings (Malik et al., 2025). The Canadian and Australian continuing professional development programs provide leadership courses based on mindfulness and systems-change workshops that teach emotional intelligence, cultural humility, and ethical leadership (Day & Gregory, 2017; Pescud et al., 2022). The interventions operate across Pakistan, South Africa, the UK, the USA, Canada, and Australia, which demonstrates the need for educational methods that match local cultural standards, workforce positions, and healthcare system designs while keeping compassion training suitable for learners at different developmental levels, from students to practicing clinicians.

The research evidence indicates that demographic factors—such as career stage, professional role, and local context—influence how compassion is developed through organizational learning. The effectiveness of interventions depends on their ability to match developmental levels and cultural needs through undergraduate narrative medicine modules (Charon, 2012; Gishen et al., 2016) and postgraduate simulations (Malik et al., 2025) and continuing professional development initiatives based on mindfulness and systems leadership (Day & Gregory, 2017; Pescud et al., 2022). This domain establishes that compassion education requires age-relevant, context-sensitive, and role-specific approaches. The foundation for systemic implementation of compassion requires its integration at the individual level across different times and geographical locations. Gender was not explicitly addressed in the studies included in this review, suggesting an area that may benefit from further investigation in future research.

3.1.2 Domain 2: Personal characteristics

Domain 2 focuses on the individual psychological traits of healthcare professionals, which includes empathy, emotional intelligence, perspective-taking, and reflective thinking skills, which affect their responses to patient distress. In contrast to Domain 1, which focuses on the demographic characteristics of practitioners ("who" they are), this domain includes the internal competencies that influence "how" they engage in compassionate practice.

The development of personal characteristics for compassionate practice continues to be a primary focus in various interventions: For example, the development of empathy and perspective-taking and narrative competence was cultivated through narrative medicine workshops and medical humanities curricula, which teach storytelling and reflective writing and patient-centered dialogue (Charon, 2012; Daryazadeh et al., 2020; Schwartz et al., 2020). Leadership development programs in Canada and Australia considered emotional intelligence and mindfulness as core components to help healthcare professionals develop self-awareness and emotional regulation and adaptive communication skills (Day & Gregory, 2017; Pescud et al., 2022). The 5Rs framework serves as a structured coaching intervention to teach clinicians how to identify and handle their implicit biases during patient care (Masters et al., 2019). Reflective exercises about ethical dilemmas in intensive care settings help develop moral courage, which strengthens both resilience and principled decision-making (Szawarski, 2020). The flexible training method of podcast-based empathy education enables healthcare professionals to develop improved understanding of patient experiences (Ying et al., 2024).

These interventions demonstrate that developing internal capacities serves as an essential foundation for performing external compassionate actions. Healthcare providers develop nuanced and responsive ways to engage with suffering through the purposeful development of emotional, ethical, and interpersonal competencies. The development of these attributes creates essential compassionate readiness within individuals, which allows them to manage the emotional challenges and relationship needs of modern clinical practice.

3.1.3 Domain 3: Personal history and experience

The development of healthcare professionals' compassion depends heavily on their past experiences and their exposure to reflective learning practices: Through international service-learning placements, students gain awareness about social determinants of health by experiencing different cultural and clinical settings, which leads them to reflect critically on their professional values (Borstad et al., 2018; Loignon et al., 2016). Through action research at Lebanon's outpatient clinics, Mystery Patient tools help staff members discover patient viewpoints, which leads to ongoing learning and improved service quality empathy (Daouk-Öyry et al., 2018). The art therapy sessions in Singapore help junior doctors to handle emotionally demanding situations while developing patient relationships during palliative care rotations (Ong et al., 2024). Medical humanities tutorials together with structured reflective writing assignments across multiple countries help students develop improved skills to handle complex ethical situations and manage their emotional reactions to patient pain (Kelly et al., 2022; Charon, 2012).

These multiple intervention approaches mentioned above demonstrate that structured experiential learning creates a strong foundation for compassionate practice. These approaches help practitioners internalize healthcare relational dimensions by combining reflective processes with emotionally engaging clinical experiences during their training. This domain shows that compassionate practice develops into a mindset through accumulated experience and emotional engagement and self-reflection shaped over time. Healthcare workers develop sustained

authentic compassion throughout their professional lives through personal history and experiential learning as fundamental developmental pathways.

3.1.4 Domain 4: Habitual behaviors

This domain includes the development of individual compassionate practice and organizational structured routines, which reinforce these behaviors across teams. The development of consistent, habitual compassionate behaviors has been considered a central objective of various healthcare intervention programs. For example, some UK hospital wards adopted structured communication routines, which include intentional nurse rounding with compassion checklists to standardize compassionate interactions and improve patient satisfaction and staff engagement (Harris et al., 2019). The 5Rs of the Cultural Humility coaching framework help medical professionals detect and reduce unconscious bias during their standard patient interactions (Masters et al., 2019). Medical humanities curricula employing repetitive reflective writing have demonstrated efficacy in enhancing learners' self-awareness and their capacity to navigate the ethical and emotional dimensions of clinical practice (Schwartz et al., 2020; Kelly et al., 2022). The asynchronous podcast-based empathy training provides learners with flexible and accessible ways to develop their listening and interpretation skills and perspective-taking capabilities (Ying et al., 2024). Junior doctors participate in art therapy sessions, which create secure psychological spaces to handle their emotions and build their empathic understanding (Ong et al., 2024). Collectively, these interventions demonstrate the importance of consistent, structured opportunities to rehearse compassion-related behaviors in educational and clinical environments. Such interventions, when integrated into regular practices and when supported with reflective mechanisms, help build enduring, automatic, compassionate behaviors. These structured approaches allow compassion to become a deeply ingrained professional standard sustained through personal dedication and organizational design and cultural values.

3.1.5 Domain 5: Circumstantial and contextual factors

The immediate clinical environments and broader social contexts significantly influence the overt expression of compassion. Research evidence shows that hierarchical challenges, heavy workloads, and rigid workflow systems inhibit compassionate behavior. For example, research conducted in Pakistan's postgraduate medical education system (Malik et al., 2025) found that systemic stressors and power imbalances have been shown to be major challenges to compassionate decision-making. Research conducted in UK hospitals shows that ward culture and team dynamics determine the effectiveness of compassion-oriented interventions, including leadership workshops and structured nurse rounding, which proves the necessity of environments that promote psychological safety and respectful dialogue (Bridges et al., 2018; Bridges et al., 2017; Harris et al., 2019). Additionally, the “Tell Me More” initiative in the United States demonstrates how structured student–patient communication reduces relational distance while improving mutual understanding to create more humanistic care in demanding clinical environments (Qing et al., 2021). The presence of birth companions in South African maternity wards through institutional policy changes shows how organizational reforms reduce patient exposure while promoting respectful compassionate care (Summerton et al., 2021). These studies collectively illustrate that contextual and encounter-level conditions are fundamental determinants of compassionate care. Sustaining compassion involves desiring clinical environments that incorporate interpersonal relationships and unit-level organizational processes to support compassion in daily practice.

3.1.6 Domain 6: Organizational and structural factors

Domain 6 covers the organizational and structural factors that influence the integration, support, and sustainability of compassion in the healthcare systems. Organizational and structural dimensions are essential to establish and maintain compassion at an organizational level: The UK hospitals implemented two formal interventions, which showed that leadership workshops and the Creating Learning Environments for Compassionate Care (CLECC) program could change institutional norms related to communication, emotional regulation, and patient care through reflective practice and interdisciplinary collaboration and structured feedback (Bridges et al., 2017; Bridges et al., 2018).

The Schwartz Center Rounds function as a widely used program in UK and USA healthcare organizations to create structured, emotionally safe spaces that allow clinicians to process difficult cases and build mutual understanding and reinforce collective empathy to develop resilient organizational cultures (Maben et al., 2018; Gishen et al., 2016). Positive Deviance models in South African HIV care facilities demonstrate how staff-initiated innovative approaches combined with participatory design help address institutional barriers that prevent compassionate healthcare delivery (Ober et al., 2025). Policy reforms—such as the introduction of birth companions—show how institutional regulations can systematically promote respectful, compassionate care while protecting patients in high-stress clinical settings (Summerton et al., 2021).

In Canada and Australia, policy reforms allowed for the implementation of compassion-oriented programs designed to integrate compassion into governance frameworks, workforce regulations, and system-wide practices. The Canadian and Australian healthcare systems have progressed this agenda through co-production methods, which integrate compassion into core health system governance and workforce policy through professional certification and leadership development programs (Runacres et al., 2024; Pescud et al., 2022).

These findings show that individual compassion training is insufficient when isolated from organizational support. Sustainable compassionate practice involves structural reforms, leadership commitment, and governance structures that establish compassion as a fundamental organizational principle. The findings across the six domains illustrate that compassionate practice emerges from the interaction of individual capabilities, contextual factors, and systemic structures rather than from a singular determinant functioning in isolation. For example, narrative medicine (Domains 2 and 3) can help people develop empathy or perspective-taking skills. However, contextual factors like hierarchical team dynamics and unsafe environments can either reinforce or limit these skills (Doman 5). Whether these compassionate responses are sustained in practice depends on organizational structures such as leadership support, learning environments, and policy frameworks, which either reinforce or suppress these behaviors over time (Domain 6). This cross-domain interdependence demonstrates that compassion operates as a multilevel phenomenon simultaneously influenced by individual characteristics, contextual environments, and overarching organizational frameworks.

3.1.7 Synthesis of individual, contextual, and structural determinants of compassion

Within the epidemiologic framework, Domains 1-4 correspond to the "person determinants"—capturing demographic factors, psychological capacities, personal histories, and habitual behaviors—while Domain 5 reflects "place"-based influences shaped by situational conditions. Table 1 summarizes the six domains of the epidemiology of compassion framework, including their definitions, key features, and illustrative examples from the included studies.

Table 1. *Summary of the six domains of the epidemiology of compassion framework*

Domain	Definition	Key Features	Examples From Included Studies
Domain 1: Demographic Features	Characteristics such as career stage, professional role, and training level that shape how compassion is expressed and developed.	Represents the "who"; demographic variables interact with local training context; requires role-specific and culturally appropriate designs.	Medical students receiving narrative medicine workshops (Charon, 2012; Gishen et al., 2016); Pakistani postgraduate trainees in simulation-based compassion training (Malik et al., 2025); CPD leadership programs in Canada/Australia emphasizing emotional intelligence and systems change (Day & Gregory, 2017; Pescud et al., 2022).
Domain 2: Personal Characteristics	Internal psychological traits such as empathy, emotional intelligence, perspective-taking, and reflective capacity that influence engagement in compassionate practice.	Represents the "how"; focuses on internal competencies; supports emotional regulation and ethical behavior.	Narrative medicine to cultivate empathy and perspective-taking (Daryazadeh et al., 2020); EI-based leadership programs (Day & Gregory, 2017); 5Rs coaching model for implicit bias reduction (Masters et al., 2019); podcast-based empathy education (Ying et al., 2024).
Domain 3: Personal History and Experience	The influence of past experiences and reflective exposure on developing compassionate mindsets over time.	Builds compassion through experiential, emotionally engaging, and reflective learning; accumulates over training stages.	Service-learning placements developing social determinant awareness (Borstad et al., 2018); Mystery Patient tools in Lebanon (Daouk-Öyry et al., 2018); art therapy for emotional processing in Singapore (Ong et al., 2024); reflective writing across humanities curricula (Kelly et al., 2022).
Domain 4: Habitual Behaviors	Repeated individual behaviors and structured routines that reinforce compassion as a consistent practice.	Emphasizes routine formation; repetition; structured practice opportunities; integration into daily workflow.	Intentional nurse rounding with compassion checklists (Harris et al., 2019); repetitive reflective writing (Schwartz et al., 2020); 5Rs routine for bias interruption (Masters et al., 2019); art therapy for emotional regulation (Ong et al., 2024).
Domain 5: Circumstantial and Contextual Factors	Immediate situational and environmental conditions—team dynamics, workload, workflow demands—that affect compassionate expression.	Reflects encounter-level influences; shaped by interpersonal climate, local culture, and unit-level operations.	Pakistan postgraduate trainees affected by systemic stressors (Malik et al., 2025); UK ward culture shaping success of compassionate initiatives (Bridges et al., 2018); "Tell Me More" communication intervention reducing relational distance in U.S. settings (Qing et al., 2021); birth companion policies in South Africa (Summerton et al., 2021).

Domain	Definition	Key Features	Examples From Included Studies
Domain 6: Organizational and Structural Factors	System-level governance, policies, leadership, and institutional culture that support or constrain compassionate practice.	Emphasizes leadership, policies, structural reforms; establishes sustainability; integrates compassion into governance.	CLECC leadership workshops reshaping organizational norms in UK hospitals (Bridges et al., 2017; 2018);Schwartz Center Rounds serve as an institutional framework for emotional processing and organizational empathy (Maben et al., 2018; Gishen et al., 2016); Positive Deviance strategies are modifying clinic workflows in South African HIV care environments (Ober et al., 2025); Reforms in birth companion policy advocating for empathetic maternity care in South Africa (Summerton et al., 2021); Governance and workforce reforms including compassion into leadership and comprehensive regulation in Canada and Australia (Runacres et al., 2024; Pescud et al., 2022).

Domain 6 includes systemic structures that influence both "place" and the "time" element through leadership practices, workplace regulations, and institutional routines, which reinforce or limit the practice of compassion in clinical practice.

Individual-level factors such as demographic features, personal characteristics, lived experiences, and habitual behaviors interact continuously with environmental, contextual, and organizational structures, which determine how compassion emerges in practice. For example, the development of empathy and perspective-taking skills through narrative medicine and service-learning activities (Charon, 2012; Borstad et al., 2018) is either reinforced or undermined by the clinical environment culture, which may include hierarchical challenges or a heavy workload, which limits compassionate responses (Malik et al., 2025; Bridges et al., 2018). Experiential learning approaches such as art therapy, reflective writing, and Mystery Patient exercises help in the development of compassion as a personal and professional value. However, the sustainability of compassionate behaviors depends on organizational support and systemic alignment to establish communication routines and bias mitigation coaching programs (Harris et al., 2019; Masters et al., 2019). The studies demonstrate that building compassion needs a comprehensive framework which goes beyond individual training to transform healthcare environments and institutional cultures. The effectiveness of individual domain-specific interventions may be limited when implemented independently.

Health systems achieve their highest potential to establish compassion as an institutional value through coordinated strategies which take into consideration the dynamic relationships between individual factors and contextual elements and organizational systems. By conceptualizing compassion epidemiologically, that is, shaped by person, time, and place, healthcare leaders can design policies and practices that systematically nurture compassionate care across different settings (Bridges et al., 2018; Schwartz et al., 2020; Ying et al., 2024).

3.2 Organizational learning approaches and their application in compassionate health care

This section uses the same 36 studies included in the review and integrates them with foundational organizational literature to explain each approach and show how these models work with the evidence that was included.

Healthcare sustainability demands more than personal empathy because healthcare organizations need to develop learning abilities and adapt systems to embed caring principles.

Three organizational learning approaches inform the transformation of healthcare organizations toward compassionate care; they are as follows: (1) reflective practice, (2) psychological safety, and (3) knowledge management. These approaches guide institutions to transform their responses from reactive to proactive system-level integration of compassion. The next subsections show each approach with a brief overview, evidence from included studies, and key implications for compassionate healthcare practice.

3.2.1 Reflective practice

Healthcare professionals use reflective practice as their core method to develop compassion through both immediate and delayed clinical self-assessment. The approach is based on Schön's (2017) distinction between reflection-in-action and reflection-on-action, which allows practitioners to conduct critical assessments of their clinical choices and behavioral responses and emotional reactions both during and after patient encounters. According to Larrivee (2000), reflective practice serves as an essential tool for developing critical self-awareness and moral reasoning and ethical sensitivity, which healthcare providers need to deliver compassionate care in emotionally demanding situations. Through reflective practice, professionals learn to question their automatic reactions while exploring different viewpoints, which deepens their empathy and relational understanding.

Professional development programs which teach mindfulness and self-compassion translate individual emotional regulation to organizational psychological safety. The Mindfulness-Oriented Professional Resilience (MOPR) program conducted in Italy achieved a 20% reduction in compassion fatigue scores ($p < .05$) and showed decreased psychological distress among healthcare workers after the intervention (D'Antoni et al., 2025). The WellMind app-based intervention led to a 15% increase in self-compassion scores while reducing burnout indicators among 120 clinicians throughout a three-month period (Jaiswal et al. (2024). The analysis of compassion training programs shows that these interventions produce moderate to large effects (d = 0.5–0.8) which benefit clinician resilience (Kirby et al., 2017; Luberto et al., 2018). The sustainability of these programs depended on combining individual skill development with organizational support that included reflective supervision and integration into continuing professional development processes (CPD). The research findings are limited by their limited sample size and brief observation periods, which affect the durability of the results. The empirical strategies of leadership interventions, team-based learning, and professional development demonstrate measurable improvements in compassionate care indicators. These strategies operationalize the theoretical models introduced earlier by integrating essential components of critical reflection, emotional safety, team cohesion, and knowledge integration into standard practice. Future research should develop multi-level interventions which combine different themes to establish compassion as both an organizational standard and operational principle.

Team-based learning (TBL) utilizes interprofessional collaboration, which follows the reflective practice principles. The controlled evaluation in Hong Kong with nursing and physiotherapy students demonstrated substantial improvements in empathy and inter-professional communication after implementing facilitated problem-solving sessions (Ho et al.,

2022). The Canadian study using simulation-based debriefing showed clinicians developed greater self-reported empathy while patient–family satisfaction improved according to the CARE measure through peer-structured feedback, although the study had small cohorts and relied on self-report data (Gerdes & Segal, 2020). Systematic reviews demonstrate that TBL strengthens shared mental models and mutual respect and collective reflexivity, yet they acknowledge variations in study designs and insufficient data regarding long-term effects. The research demonstrates that TBL enables compassionate care through environments which promote coordinated team reflection.

3.2.2 Psychological safety

Psychological safety refers to a shared belief among organizational members that they can take interpersonal risks such as admitting mistakes and seeking help or expressing dissent without facing humiliation or retribution (Edmondson, 1999). Psychological safety is mainly a construct at the organizational and team levels, rather than an individual characteristic, as it arises from collective norms, leadership behaviors, and shared interaction patterns. This construct has been widely recognized as a fundamental requirement for fostering effective team learning and innovation and performance in high-stakes and complex work environments (Newman et al., 2017). In healthcare, psychological safety creates an essential condition for relational practices which support compassionate care through its ability to allow open and empathetic interactions between colleagues and patients.

Research conducted in healthcare settings demonstrates that psychological safety leads to improved team performance and patient outcomes. Teams led by inclusive leaders demonstrate improved collaborative problem-solving and help-seeking behavior between different hierarchical levels (Nembhard & Edmondson, 2006). Healthcare teams which developed psychologically safe environments during the COVID-19 pandemic showed improved adaptability together with emotional resilience and peer support under intense clinical stress (Bahadurzada et al., 2024). In contrast, rigid hierarchical structures, which discourage dissent and stigmatize vulnerability, have been shown to suppress communication, reduce team morale, and limit compassionate responses in crisis situations. An evaluation study conducted in various hospital environments has shown that emotional support and psychological safety act as essential factors which enhance well-being (Taylor et al., 2021).

The implementation of mindfulness-based professional development programs produces measurable advantages. The MOPR randomized controlled trial conducted in Italy showed compassion fatigue decreased by 20% while psychological distress levels decreased statistically (D'Antoni et al., 2025). The WellMind digital self-compassion program demonstrated a 15% rise in self-compassion while simultaneously decreasing emotional exhaustion during its three-month duration (Morrison et al., 2024). The existing meta-analytic research supports these results by showing moderate to large effect sizes ($d = 0.5–0.8$) for clinician resilience and burnout reduction (Kirby et al., 2017; Luberto et al., 2018).

Integrating psychological safety into organizational culture create environments which promote transparency, collective learning, and establish compassion as a normative value. Psychological safety creates a structural foundation for sustained system-wide compassion because it establishes environments where staff members feel secure to share their uncertainties and emotional burdens while maintaining mutual respect.

3.2.3 Knowledge management

Knowledge management (KM) refers to the organized process of acquiring and organizing explicit and tacit knowledge to enhance organizational learning and performance (Argote & Miron-Spektor, 2011). Knowledge management functions as a vital mechanism in healthcare systems to reinforce compassionate practices, which ensures empathetic care delivery throughout different settings and disciplines and times. KM enables the diffusion of best-practice insights between institutions, which establishes a shared learning environment that supports compassionate organizational functioning.

KM strategies in compassionate care models operate through three main mechanisms which include documenting patient-centered interventions, storytelling sessions on empathy experiences, and maintaining case review repositories. These practices help maintain and distribute experiential knowledge that would otherwise disappear because of employee departures and separate professional training programs. Knowledge management maintains and distributes compassion-focused wisdom through case reviews and digital platforms and communities of practice to establish empathetic care as a lasting organizational asset (Argote & Miron-Spektor, 2011). Digital platforms, which include e-learning modules and intranet-based discussion forums and shared care pathways, enable the large-scale distribution of relational knowledge. For example, clinical training materials that incorporate emotion-focused communication strategies from Schwartz Center Rounds enable staff members to learn and establish compassionate behaviors as standard practice. Communities of practice serve as collaborative environments that help develop emotional intelligence, ethical reasoning, and interpersonal insight, which become institutional norms.

The implementation of effective knowledge management practices converts compassion from a personal skill into an organizational resource. The implementation of compassionate principles within organizational memory and procedural norms ensures consistent empathic care delivery throughout shifts and teams and service areas. Through KM, the system becomes more resilient because compassionate care becomes embedded in evidence-based practice structures, which reduce patient experience variability. Healthcare systems that show compassion need more than individual empathy because they require organizational structures of continuous learning, adaptation, and cultural transformation.

The three models of reflective practice, psychological safety, and knowledge management provide systematic approaches to implement compassion. Healthcare organizations achieve patient-centered value alignment through this transformation of their governance and policy systems. The practice of reflection helps people develop emotional processing abilities together with ethical awareness. Healthcare teams develop collective insight and professional empathy through reflective writing and debrief sessions and facilitated dialogues, which build their resilience (Schön, 2017; Larrivee, 2000). Staff members who feel secure about speaking up about errors and voicing concerns and taking interpersonal risks through psychological safety create both team learning and a caring environment (Edmondson, 1999). Openness serves as a fundamental requirement for compassionate interactions. Healthcare institutions which question their purpose and reflect on their practice while supporting open communication and systematizing caring principles will maintain compassionate culture. The implementation of these elements transforms individual compassion into a set of institutional norms supported across systems.

3.3 Comparative analysis

This comparative analysis utilizes the specific interventions delineated in the included studies, namely CLECC, Schwartz Center Rounds, Positive Deviance models, and equity-oriented maternity and community-based programs. These interventions were categorized and analyzed according to contextual disparities identified in the evidence, including health-system income level, clinical environment, and equity-related implementation challenges.

3.3.1 Health-system income level as a determinant of compassion intervention design

This subsection compares interventions based on World Bank income-level classifications: high-income health systems (HICs) and low- and middle-income health systems (LMICs) rather than by country, with countries only referenced as examples.

High-income countries represented in this sample implement structured institution-wide compassion interventions: For example, the Schwartz Center Rounds in Canada and the UK have shown that clinician empathy improves and stress decreases, according to Taylor et al. (2021). The CLECC pilot in UK NHS hospitals applied leadership coaching and reflective practice to boost team compassion, which led to positive staff-patient interactions, according to Bridges et al. (2018).

The primary approaches in low- and middle-income countries (LMICs) in this sample consist of resource-responsive, community-rooted methods. The Positive Deviance for HIV care intervention in Cape Town used participatory focus groups and patient shadowing and qualitative leadership interviews to develop the low-cost "Connect" program, which integrated confidentiality and workflow changes and environmental improvements for primary care retention (Ober et al., 2025). The asset-based model showed cultural relevance and affordability and strong buy-in but needs future studies to track rigorous outcomes.

The analysis shows that high-income country interventions benefit from institutional capacity and structured evaluation, yet LMIC efforts focus on pragmatic adaptability and cultural fit. The measurement rigor in LMICs is developing, but it does not match the level of Western trials at present. The process of scalability demands that interventions must be adapted to match the local capacities and community characteristics. Additional challenges to scaling includes staffing shortages, financial and logistical demands of training large teams, and leadership turnovers, which prevent consistent implementation across sites.

3.3.2 Hospital vs. primary care

In hospital settings, compassion initiatives are generally ward-based and leadership-led and rely on structured reflection cycles: For example, the CLECC pilot program established four intervention wards and two control wards to integrate team huddles with reflective dialogues and peer support into daily operations. The quantitative assessment revealed improved quality improvement (QI) scores, and the qualitative results demonstrated stronger team norms (Bridges et al. 2018).

By contrast, primary care settings, for example, the South African Positive Deviance program, use workflow adaptation and staff empowerment to enhance ART retention. The interventions consisted of regular support huddles and environmental improvements, which frontline health workers directed instead of senior leaders. The program measured its success through patient retention rates and staff opinions instead of using standardized empathy assessment tools.

The operational differences between hospitals and primary care facilities drive this divergence because hospitals can implement systematic leadership and reflection programs, but

primary care needs adaptable, decentralized approaches. The different measurement tools between hospitals and clinics, including the Quality of Interactions Schedule (QuIS) in hospitals and retention metrics in clinics, challenge direct comparison. The implementation of compassion in daily workflows and team interactions brings advantages to both hospital and clinic environments.

3.3.3 Equity and access

In this review, equity pertains to the mitigation of disparities affecting marginalized populations, including rural communities, low-income groups, racial and ethnic communities, and patients receiving care in under-resourced clinical environments.

Equity-focused compassion strategies work to address underserved populations: The Positive Deviance intervention in South Africa was specifically designed for primary clinics that serve marginalized communities, embedding culturally informed staff support and patient-centered environmental changes (Ober et al., 2025). In contrast, structured programs in HIC hospitals often use a universal approach, which may overlook equity gaps unless specifically tailored.

One example is the deployment of birth-companion policies in rural maternity wards across LMICs that aim to improve access to emotional support for marginalized mothers—though evidence of impact varies (Addiss et al., 2022). Another equity-oriented intervention involves co-production in certification, where underserved communities contribute to the design and delivery of training, thereby aligning interventions with lived experiences and cultural context.

The synthesis of the included studies indicates that explicit equity frameworks, such as participatory design and context-specific outreach, improve the relevance and effectiveness of compassion interventions.

3.4 Proposed analytical framework

This proposed analytical framework evolved from the patterns observed within the included studies. A three-dimensional framework is proposed to examine how organizational learning mechanisms—reflective practice, psychological safety, and knowledge management—interact across person, time, and place dimensions to promote compassionate healthcare. This proposed analytical framework evolved from the patterns observed within the included studies. A three-dimensional framework is proposed to examine how organizational learning mechanisms—reflective practice, psychological safety, and knowledge management—interact across person, time, and place dimensions to promote compassionate healthcare (see Table 2, below).

Person-level competencies develop through reflective practice, which helps individuals become more aware of themselves and their emotions. The research involving 1,096 nursing students showed that reflective thinking strongly correlated with emotional intelligence (r =.612, p < .001) because self-awareness development leads to improved compassionate practice (ElAshry, Dogham, & Elcokany, 2025). Staff members develop the necessary interpersonal environment for compassionate clinician development through psychological safety, which allows them to express empathy and address ethical concerns without fear of punishment (Edmondson, 1999).

Time-level sustainability occurs when organizations establish reflective learning practices alongside leadership revision and shared knowledge systems. The process described by Crossan et al. (1999) in their "institutionalizing" phase transforms individual learning into organizational routines. The combination of debrief cycles with knowledge systems establishes feedback loops, which prevents the return to transactional care. Evaluations demonstrate that cultural alignment

with feedback mechanisms serves as an essential factor for sustaining compassionate practice throughout different staff groups.

Table 2. *Person–Time–Place analytical framework linking organizational learning mechanisms to compassionate healthcare*

Mechanism	Person (Competencies)	Time (Sustainability)	Place (Contextual Adaptation)
Reflective Practice	Enhances emotional intelligence and self-awareness through structured reflection (ElAshry, Dogham, & Elcokany, 2025)	Embeds compassion into routine debrief cycles, preventing regression into transactional care (Crossan et al., 1999)	Adjusts reflective formats to local hierarchies and cultural norms (Larrivee, 2000)
Psychological Safety	Encourages empathy, openness, and vulnerability in teams (Edmondson, 1999)	Sustains open communication and shared learning across staff cohorts (Edmondson, 1999)	Shapes interpersonal norms according to cultural and organizational dynamics (Edmondson, 1999)
Knowledge Management	Facilitates skills via training archives and shared protocols (Argote & Miron-Spektor, 2011)	Preserves compassionate routines during leadership or staff turnover (Argote & Miron-Spektor, 2011)	Documents place-specific compassionate practices for consistent adaptation across settings (Argote & Miron-Spektor, 2011)

Place-level adaptation is essential for context-specific adaptation: For example, the Positive Deviance intervention in Cape Town used frontline staff to create HIV care systems in low-resource clinics which both respected cultural norms and addressed environmental limitations (Ober et al., 2025) while maintaining compassionate processes. Standardized hospital-led interventions fail to consider the details of each context. Knowledge management systems help organizations develop adaptable, compassionate frameworks that respond to cultural requirements.

The framework demonstrates that emotional competence development at the individual level requires institutional support through time-based institutionalization and place-specific adaptation.

4. Discussion

Compassion has been an essential component of major philosophical and religious traditions and is considered a moral ideal and social practice. In Buddhism, compassion is recognized as the fundamental ability to alleviate suffering and foster relational awareness, whereas in virtue ethics, compassion is considered a character-based disposition that directs ethical behavior and moral judgement. These enduring traditions conceptualize compassion not only as an internal

moral state but also as a practice expressed through intentional, relational behavior. This broader intellectual heritage supports the idea that compassion can be a system-level value, providing a conceptual foundation for understanding its relevance in healthcare organizations.

4.1 Organization learning as systemic driver of compassion

Organizational learning serves as a systemic driver for compassion by enhancing institutional capacity for empathy, collaborative leadership, and psychological resilience. Across interventions, three mechanisms support this development, namely structured reflective routine, psychologically safe environment, and accessible knowledge-sharing platforms. These mechanisms work collectively to create a supportive environment that allows compassion to be a part of everyday practice once the routines are set. Recent systems-oriented models of person-centered care support this viewpoint: Ibrahim & Sidani (2016), Santana et al. (2018), McCormack and McCance (2017), and Ekman et al. (2011) argue that compassion, relational attentiveness, and person-centeredness are effective only when integrated into organizational frameworks and system-wide practices, rather than being considered as standalone interpersonal competencies.

Trust serves as a fundamental relational condition that facilitates the operation of these mechanisms, as staff are more likely to participate in reflection, seek support, and engage in compassionate behavior when interpersonal trust is established. The reviewed interventions used established learning frameworks which support these mechanisms to develop compassionate practice. The common frameworks appear in Table 3, which shows their relationship to compassionate practice.

Table 3. *Recurring organizational learning approaches for compassion*

Framework	Purpose	Core Components	Relevance to Compassion
Narrative Medicine	Develops narrative competence, empathy, and reflective capacity	Close reading, storytelling, reflective writing	Enhances perspective-taking, communication, and patient-centered understanding
5Rs Framework (Cultural Humility)	Promotes bias awareness and culturally responsive care	Reflection, Respect, Relevance, Resilience, Responsibility	Supports equitable, compassionate engagement and relational sensitivity
Team-Based Learning (TBL)	Strengthens collaboration, shared decision-making, and team learning	Readiness assurance, team applications, peer evaluation	Builds psychological safety and supports collective compassionate behaviors
Schwartz Center Rounds	Provides emotional support and space for reflective dialogue	Case-based reflection, group discussion, facilitated emotional processing	Cultivates collective empathy and reduces emotional fatigue

Organizational learning directly supports the risk domains delineated in the epidemiology of compassion model (Addiss et al., 2022). The findings suggest that training individuals independently is insufficient. For compassion to be sustainable, there needs to be a mechanism that operates across people, time, and place. Incorporating reflective routines, psychological

safety, and knowledge-sharing approaches aligns individual competencies with organizational norms and contextual demands. Healthcare systems that incorporate these learning mechanisms reduce risk factors across various domains, thus resulting in more equitable workforce resilience and improved patient-centered outcomes.

4.2 Contributions to theory

Although the included interventions were implemented at the organizational level, their mechanisms function at a population scale as they are disseminated throughout systems, affective workforce behavior, patient experience, and institutional norms. Organizational learning mechanisms integrated into the epidemiology of compassion model now address system-level and population-level interventions which transform healthcare culture. The interventions function at scale to modify organizational standards instead of providing individual staff support. The traditional epidemiologic models focus on changing clinician traits, including empathy and workload coping, but organizational learning intervenes at higher system levels to strengthen long-term sustainable compassionate behavior (Addiss et al., 2022).

The Person–Time–Place analytical framework presented above may serve as a blueprint for designing responsive policies (Addiss et al., 2022; Pestian et al., 2023). In this model, policy serves as an active organizational intervention, affecting structures, staff routines, and performance expectations, similar to how leadership programs or reflective systems serve as practice-level interventions. Workforce governance policies may enforce scheduled reflective debriefs on clinical units (time), and organizational audits can assess psychological safety (person/place), and compassionate care metrics, including team cohesion, may be incorporated into accreditation and funding criteria (place/time). These instruments transform compassion into a public health resource instead of treating it as a soft skill.

This theoretical integration necessitates mixed-method and longitudinal evaluations to assess predictive relationships between organizational learning interventions and improved compassionate outcomes, including patient satisfaction and staff well-being. The development of organizational compassion capacity scales enables researchers to measure systemic changes empirically (Akgün et al., 2025). Research must develop equity-oriented theory by testing the universal application of Positive Deviance (PD) approaches across different settings or their necessity for underserved contexts. For example, equity-oriented theory development may investigate how compassion interventions operate across low-income or minority groups to identify structural challenges and culturally responsive determinants.

4.3 Challenges to implementation

Implementing organizational learning strategies to promote compassion in healthcare faces several interrelated challenges. These challenges arise at both individual and organizational levels. For example, staff resistance is a problem at the person and team levels, while lack of resources or leadership are problems at the organizational level. These challenges stem from individual apprehension and collective inertia, potentially causing superficial compliance without genuine engagement.

The implementation faces challenges because executive leaders may not fully support it and the definition of compassionate leadership remains unclear. Leadership challenges and cultural barriers are distinct challenges, yet they are related, as the way leaders behave can change the culture of the organization, and the culture itself can either support or limit compassionate leadership practices (Schein & Schein, 2017). Blame cultures and hierarchical structures created barriers to psychological safety and inhibit learning. Leadership development programs and just-

culture audits, with structured processes, high-level sponsorship, and visible modeling of learning behaviors, support adoption to demonstrate priority alignment and learning behavior modeling.

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4.4 Opportunities and recommendations

Healthcare organizations now have strategic possibilities to integrate compassionate organizational learning, which will transform theoretical goals into lasting practice through combined leadership efforts, staff participation, and policy implementation.

Leadership development enables organizations to transform their approach toward modeling and prioritizing compassion. Research shows that organizational success grows when leaders transition from hierarchical command-and-control systems to distributed adaptive leadership, which builds trust, psychological safety, and collective reflection (De Zulueta, 2015). Leadership development programs that use multiple methods to teach systems thinking, emotional intelligence, and structured reflection help staff members develop their competencies.

Staff engagement requires equal attention for improvement. The Press Ganey national data demonstrates that employee engagement directly influences both compassionate care climate development and workforce retention, according to Gandhi and Eagle (2023). The implementation of participatory co-design forums and recognition initiatives, together with monthly ‘compassion sprints’ for local innovation testing, can transform employee engagement into standard compassionate practices which build enduring emotional bonds and prevent team overwhelm.

The implementation of policy integration through structural mechanisms maintains compassion as a fundamental system component. The NHS England Commissioning for Workplace Compassion guide demonstrates how contracting and performance frameworks can include compassion metrics, including team well-being and psychological safety (NHS England, 2018). The integration of compassion indicators into accreditation processes, funding psychological safety assessments, and mandating structured debriefs after critical events ensures empathy becomes a permanent part of clinical settings and institutional governance.

The interventions based on the person–time–place framework activate compassion at multiple levels by developing leadership (person), implementing compassionate practices through staff engagement (time), and integrating compassion into organizational infrastructure across different care environments (place). Healthcare systems can transform compassion from an inspirational goal into a quantifiable long-term care delivery feature through strategic connections between leadership development and staff engagement and policy implementation.

4.5 Implications for the epidemiology of compassion

The implementation of organizational learning strategies through epidemiological frameworks enables healthcare providers to establish compassionate care systems at a population scale. Standardization of compassionate practice across systems can be achieved through structured diffusion mechanisms which include accreditation standards, continuing education frameworks, health agency partnerships, and professional communities. Research shows that social and economic adversities such as poverty, housing instability, and food insecurity are linked to diminished compassionate care (Andermann, 2016; Hein & Yuan, 2022). Structural and policy factors contribute to these adversities. This then means that interventions that focus on compassion must include policies at the organizational and system levels which address disparities in resource distribution, access to service, and institutional inequality.

Therefore, compassion-focused programs must include systematic social-screening tools, clear referral pathways, and advocacy strategies to address these unmet patient needs. The approach of treating compassion as a population-level intervention enables it to function as both a risk reduction method and an equity improvement strategy. Future research needs to combine mixed-method and longitudinal designs to assess compassionate outcomes together with equity metrics, which will verify that interventions deliver both impact and justice.

The practice of compassion produces beneficial effects across multiple levels by reducing clinician burnout while simultaneously enhancing patient trust and satisfaction and developing system-level culture and equity and sustainability. In this model, the person-time-place lens aligns individual capacities to person-level factors, sustained routines to time-level factors, and organizational environments to contextual and structural factors. This framework aligns compassion as both an outcome and a process at the system level. In this review, compassion serves as an individual relational capacity, an organizational cultural characteristic, and a contextual determinant influenced by structural conditions within health systems.

4.6 Limitations

Several research limitations warrant attention to deepen the interpretation of current findings and inform future investigations into organizational learning as a vehicle for compassion in healthcare.

This synthesis collected information from DOAJ, PubMed, and ProQuest databases only while omitting grey literature and materials written in languages other than English and reports about specific regions. The current evidence base is limited by small qualitative samples, self-reported measures, and short follow-ups, and therefore requires longitudinal, experimental, and cross-national studies using rigorous epidemiologic designs to build stronger, generalizable evidence on compassion. Across the included studies, intervention durations varied from brief, short, single-session formats to multi-month programs, which limits the opportunity to compare outcomes across programs.

The included studies applied diverse methodologies, which included cluster-RCTs and qualitative process evaluations as well as small-scale pilot case studies, while measuring

empathy alongside patient satisfaction and staff well-being with inconsistent outcome metrics. Study heterogeneity as outlined in the Cochrane Handbook limits comparability among interventions and reduces the feasibility of performing any significant quantitative synthesis. (Cochrane Handbook, 2023; Higgins et al., 2023). In addition, the studies included differed in their units of analysis, which included individual teams and entire clinical units, which limits the comparability of findings.

Most interventions documented exist in early developmental stages or contain small participant groups without extended observation periods. The evaluation of causal pathways along with sustainability assessment requires larger studies, as small-scale research does not fulfill these needs. The number of randomized trials specifically designed to measure compassionate outcomes remains low, while longitudinal equity-focused designs needed for systemic impact assessment are even scarcer. The present evidence requires further development through comprehensive literature searches and standardization of research approaches and implementation of robust longitudinal and equity-focused experimental designs. Future research would benefit from mixed-methods designs that integrate quantitative results with qualitative insights to capture measurable change and contextual mechanisms.

Addressing these limitations will contribute to a more comprehensive epidemiology of compassion, informing the development of scalable and sustainable models of compassionate care.

4.7 Future research directions

A forward-looking research agenda is essential to advance the epidemiology of compassion through comparative and experimental study designs that fill current evidence gaps. The study of contextual resilience and adaptability in compassion interventions requires cross-country comparisons. There is an urgent need for comparative and experimental designs to assess the causal pathways and examine the functioning of compassion-related mechanisms across various system contexts. Research focused on equity is essential, particularly studies that investigate the efficacy of organizational learning methodologies within underserved or structurally marginalized groups. Theoretical refinement is still limited, and future research needs to strengthen conceptual clarity by integrating organizational learning theory with epidemiological models of risk, distribution, and exposure. Lastly, a population orientation calls for cross-national or multi-site studies that assess contextual adaptability, cultural significance, and system-wide scalability.

5. Conclusion

Healthcare systems need structural transformation based on effective organizational learning to embed compassion within their frameworks. Leadership development with reflective practice, psychological safety, and knowledge management serves as an essential factor that promotes compassion throughout individual, behavioral, contextual, and structural levels. These mechanisms directly address changeable risk elements, including provider competence, reflective habits, team culture, and institutional support, to translate the epidemiologic model of compassion into practical intervention strategies.

The maintenance and expansion of these initiatives depends on integrating compassion into public health infrastructure systems. The World Health Organization's 2025 report states that compassion functions as an essential quality for primary health care and drives system transformation (WHO, 2025). The U.S. 2020 update to the Essential Public Health Services emphasizes workforce development and equity by requiring diverse skilled personnel and

structural safeguards (CDC, 2020). The integration of compassion-related metrics, including staff well-being, team cohesion, and patient experience, into accreditation standards, workforce policies, and community planning and funding models enables the large-scale institutionalization of empathy and accountability.

The transformation needs unified efforts from policymakers and health-system leaders and public health institutions to implement organizational learning strategies that match public health functions, including assessment and policy development and assurance. Health systems can improve their compassionate performance and population health outcomes when they measure compassion as a system parameter instead of treating it as an optional virtue. Future initiatives could establish standardized tools which combine organizational compassion scales with equity-sensitive community surveys for public health monitoring purposes. The evaluation of effectiveness and equity and adaptation requires sustained, mixed-method comparative longitudinal studies across different healthcare settings. Strategic initiatives will establish compassion as an essential accountable foundation for high-performing equitable healthcare systems.

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Appendices

Appendix A. *Data extraction table (DOAJ): Compassionate care and organizational interventions in open access literature*

The table below presents study characteristics and findings across several domains: Author, Year (study citation), Title (article name), Country (location and system setting), Study Design (methodological approach), Setting (site), Intervention/Approach (program or strategy implemented), Theoretical Framework (guiding model or theory), Outcome/Measures (variables assessed), Key Findings (main results) and Epidemiologic Relevance -Person/Time/Place (population involved, duration, sequence of intervention, and contextual setting)

#	Author (Year)	Title	Country/Context	Study Design	Setting	Intervention/ Approach	Theoretical Framework	Outcomes & Measures	Key Findings	Epidemiologic Relevance (Person/ Time/Place)
1	Malik et al. (2025)	Cultivating compassion in care…	Pakistan, postgraduate medical ed.	Mixed-methods quasi-experimental	Medical training	4-h simulation + reflective debriefs	Experiential learning	Compassion scales; focus groups	↑ compassion; barriers: hierarchy, workflow; facilitators: senior support	Person: trainees; Time: training period; Place: teaching hospital
2	Bridges et al. (2018)	CLECC pilot RCT	UK, older adult wards	Cluster RCT + qualitative	Hospital wards	Team leadership workshops + reflection	Organizational culture	Observations (QuIS); empathy/self-report	Feasible; improved interactions	Person: ward staff/patients; Time: intervention window; Place: acute wards
3	Maben et al. (2018)	Schwartz Rounds evaluation England	UK, NHS hospitals	Realist mixed-methods eval	Multiple hospital sites	Structured interdisciplinary Rounds	Realist theory	Staff surveys; interviews	Improved culture & empathy	Person: healthcare staff; Time: post-rollout; Place: hospital units
4	Reid et al. (2023)	3 Wishes Project	Canada, internal med wards	Mixed-methods QI	Hospital internal medicine	Staff co-design of dignity interventions	Co-design/co-production	Family/staff feedback	Enhanced compassionate end-of-life support	Person: patients/families/staff; Time: project cycles; Place: hospital wards
5	Gibson et al. (2023)	Canine-assisted intervention in prisons	Canada, forensic psych unit	Mixed-methods pilot	Prison psychiatric unit	Therapy dog sessions	Animal-assisted therapy	Stigma scales; staff/inmate feedback	Reduced stigma; improved interactions	Person: inmates/staff; Time: intervention sessions; Place: prison unit

#	Author (Year)	Title	Country/Context	Study Design	Setting	Intervention/ Approach	Theoretical Framework	Outcomes & Measures	Key Findings	Epidemiologic Relevance (Person/ Time/Place)
6	Ober et al. (2025)	Positive deviance HIV care program	South Africa, PHC clinics	Qualitative participatory	HIV clinics	Staff-led "Connect" via positive deviance	Positive Deviance framework	FG/in-depth interviews	Identified compassionate care drivers; Connect co-designed	Person: staff/patients; Time: retention cycle; Place: clinics
7	Summerton et al. (2021)	Birth companions in Limpopo	South Africa, district hospitals	Qualitative action research	Maternity wards	Policy enabling birth companions	Respectful maternity care	Interviews	Improved respectful & compassionate care systems	Person: patients/staff; Time: policy implementation; Place: labour wards
8	Qing et al. (2021)	Tell Me More conversations	USA, medical school	Mixed-methods educational eval	Academic–clinical setting	Student–patient narrative sessions	Narrative medicine	Feedback surveys	Enhanced student compassion & understanding	Person: students/patients; Time: curriculum session; Place: educational context
9	Cooper & Gheihman (2021)	Kind Care Bundle	USA, med school	Curriculum pilot	Medical education	Structured bundle teaching compassionate behaviours	Humanism in medicine	Surveys; reflective assignments	Students reported increased compassionate awareness	Person: medical students; Time: course duration; Place: medical school
10	Harris et al. (2019)	Intentional rounding realist evaluation	UK, hospital wards	Realist mixed-methods	Acute & older adult wards	Structured nurse rounding with compassion checklist	Realist theory	Observations; interviews	Increased nurse engagement & compassionate action	Person: nurses/patients; Time: rounding cycles; Place: hospital wards
11	Bridges et al. (2017)	CLECC qualitative evaluation	UK older adult wards	Qualitative evaluation	Hospital wards	Same CLECC leadership model	Organizational culture	Interviews/observations	Identified enablers/barriers; sustained compassion practices	Person: staff; Time: post-implementation; Place: hospital wards

Appendix B. *Data extraction table (ProQuest OA): Organizational learning and compassionate practice in healthcare education and leadership*

#	Author(s), Year	Title	Country/ Context	Study Design	Setting	Intervention/ Approach	Theoretical Framework	Outcomes & Compassion Measures	Key Findings/ Conclusions	Epidemiologic Relevance (Person/ Time/Place)
1	Lasater & Pijanowski (2025)	Centering Relationships in Leadership Preparation	USA / Education Sciences	Conceptual/ Descriptive	Leadership education programs	Relational leadership preparation	**Relational Leadership Theory** – emphasizes mutual influence, trust, inclusiveness, and shared purpose in leadership development.	Leadership relational skills	Emphasizes relational competence in leadership as foundational for compassionate practice.	Person: emerging healthcare leaders; Time: training duration; Place: educational context
2	Schwartz et al. (2020)	Fostering Empathy, Implicit Bias Mitigation, and Compassionate Behavior in a Medical Humanities Course	USA / Medical Humanities	Course evaluation	University medical humanities course	Service-learning and reflective writing for empathy and bias reduction	**Implicit Bias Theory** and **Narrative Medicine Framework** – combining bias awareness strategies with storytelling to foster empathy.	Empathy scales, bias assessments, reflective writing	Course redesign enhanced empathy, reduced bias, promoted compassionate behavior.	Person: students; Time: course semester; Place: medical humanities program
3	Oke (2018)	How should medical schools prepare medical students for leading the NHS?	UK	Conceptual Commentary	Medical school curriculum	Leadership curriculum redesign with empathy focus	**Relational Leadership Framework** – aligns with NHS goals for empathetic, inclusive leadership in health systems.	Not measured directly	Argues relational leadership skills within curriculum are essential to prepare compassionate healthcare leaders.	Person: medical students; Time: pre-clinical/clinical years; Place: medical school

#	Author(s), Year	Title	Country/ Context	Study Design	Setting	Intervention/ Approach	Theoretical Framework	Outcomes & Compassion Measures	Key Findings/ Conclusions	Epidemiologic Relevance (Person/ Time/Place)
4	Borstad et al. (2018)	Professional Values Are Implicit in Written Reflections by DPT Students in a Short-Term International Service Learning Course	USA / DPT Students	Qualitative Reflections	International service-learning placements	Structured service-learning promoting health equity and compassion	**Experiential Learning Theory** and **Service-Learning Theory** – learning through reflection on experience to build professional values.	Reflective assignments, qualitative themes	Highlights service-learning's role in shaping professional values, including compassion.	Person: DPT students; Time: during placement; Place: international clinical settings
5	Hand et al. (2018)	Alumni Perspectives on the Role of Medical School Service Learning Experiences in Their Professional Development and Practice	USA	Qualitative Alumni Feedback	Medical service-learning programs	Institutionally facilitated service learning	**Transformative Learning Theory** and **Adult Learning Theory** – emphasizing critical reflection leading to professional and compassionate identity development.	Semi-structured interviews, thematic analysis	Alumni perceive service-learning as essential to compassionate professional development.	Person: alumni; Time: reflective post-graduation; Place: varied service-learning contexts
6	Day & Gregory (2017)	Mindfulness as a Prerequisite to Effective Leadership	Canada	Conceptual Analysis	Professional leadership courses	Mindfulness training as part of feedback and leadership development	**Mindful Leadership Model** – integrates mindfulness practices to support openness, self-awareness, and compassionate leadership.	Not measured directly	Proposes mindfulness fosters receptivity to feedback, foundational for compassionate leadership.	Person: leadership trainees; Time: training period; Place: leadership development programs

Appendix C. *Data extraction table (PubMed): Compassion-focused interventions and theoretical applications in healthcare settings*

#	Author(s)/ Year	Title	Country/ Context	Study Design	Setting	Intervention/ Approach	Theoretical Framework	Outcomes	Key Findings/ Conclusions	Epidemiologic Relevance (Person/ Time/Place)
1	Ginzzburg et al., 2018	Assessment of medical students' leadership traits in a problem/case-based learning program	USA	Quantitative	Medical School	Leadership training integrated into PBL curriculum	Kolb's Experiential Learning*	Leadership traits, teamwork skills	PBL leadership training enhances leadership and teamwork among students.	Person: Medical students; Time: Academic year; Place: Medical school
2	Ying et al., 2024	What About Empathy? A Qualitative Study Exploring the Role of a Podcast as an Asynchronous Empathy Teaching Tool	Canada	Qualitative	Hospital/ University	Asynchronous empathy teaching via podcast listening and discussion	Adult Learning Theory*	Empathy levels, engagement with podcast content	Podcast-based empathy training effectively enhances empathy.	Person: Healthcare learners; Time: Pre–post intervention; Place: University setting
3	Charon, 2012	Commentary: our heads touch: telling and listening to stories of self	USA	Commentary	Academic Medical Center	Reflective writing and reading of personal and patient stories	Narrative Medicine	Reflective capacity, empathy	Storytelling fosters empathy and reflection in medical education.	Person: Students/faculty; Time: Ongoing; Place: Academic center
4	Szawarski, 2020	Classic cases revisited: Of hurricanes, cyanide and moral courage	UK	Qualitative	Hospital	Reflective practice on moral dilemmas in ICU	Moral Courage Ethics	Moral decision-making, emotional resilience	Reflective reflection increases moral courage and resilience.	Person: Clinicians; Time: Critical events; Place: ICU
5	Ong et al., 2024	Art therapy to develop empathy and foster wellbeing for junior doctors in palliative rotation	Singapore	Qualitative	Palliative Med Unit	Art therapy sessions	Art Therapy Theory*	Empathy levels, wellbeing	Art therapy improves empathy and wellbeing in junior doctors.	Person: Doctors; Time: During rotation; Place: Palliative unit