

SYSTEMATIC REVIEW

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Defining and measuring implementation climate: a scoping review and concept analysis

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Abstract

Background Implementation climate is a key organizational determinant of whether evidence-based interventions (EBIs) are adopted, delivered with fidelity, and sustained in healthcare. Despite its importance, the concept is inconsistently defined, often conflated with culture or readiness, and assessed with measures of unclear scope. We aimed to clarify how implementation climate is defined and used in healthcare, identify its defining attributes, antecedents, and consequences, delineate boundaries with related constructs, and synthesize quantitative and qualitative approaches to measurement.

Methods We combined a Joanna Briggs Institute (JBI) scoping review with Walker and Avant's eight-step concept analysis method. CINAHL, Embase, MEDLINE, and PsycINFO were searched in November 2024, supplemented by citation tracking and grey literature searching. Empirical and theoretical articles that defined, discussed or measured implementation climate in healthcare were eligible. Data were charted in Excel and synthesised inductively to derive definitions, attributes, antecedents, consequences, conceptual boundaries, and measurement indicators; attributes were mapped to the Consolidated Framework for Implementation Research (CFIR).

Results We included 39 sources (24 quantitative, 7 qualitative, 5 theoretical/review, 3 mixed-methods). We propose a synthesized definition: implementation climate is the shared perception among staff that using a specific EBI is an organizational priority, actively supported through resources and HR processes, reinforced by incentives or recognition, and aligned with everyday values and workflows. Seven recurring attributes emerged: clear expectations for EBI use; tangible organizational support (e.g., protected time, training, leadership); incentives and recognition; compatibility with workflow and values; high relative priority; tension for change; and HR practices that select and socialize staff for EBI openness. Transformational leadership and deliberate resource allocation surfaced as dominant antecedents. Stronger implementation climates were associated with improved implementation outcomes (e.g., reach and fidelity) and workforce outcomes (e.g., retention, lower burnout). Measurement options include the Implementation Climate Scale (ICS), the briefer Implementation Climate Measure (ICM), the Equity-Oriented Implementation Climate tool, and qualitative assessments.

Conclusion Implementation climate is a modifiable, measurable organizational lever for strengthening quality improvement and implementation efforts. Leaders can strengthen it by clarifying expectations, protecting time and training, aligning incentives, and ensuring workflow fit. Researchers should refine and adapt measures across contexts and test objective indicators alongside staff perceptions.

Keywords Implementation climate, Evidence-based practice, Organizational culture, Implementation science, Public health

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Contributions to the literature

- Provides a synthesized, innovation-specific definition of implementation climate centered on staff perceptions of expectations, support, rewards and recognition, and workflow fit.
- Identifies seven defining attributes and key antecedents and consequences, highlighting actionable levers (leadership and resource allocation) and links to implementation and workforce outcomes. The defining attributes; expectations, organisational support, incentives/recognition, compatibility, relative priority, tension for change, and HR practices that select for EBI openness; offering clear levers for policymakers and leaders.
- Clarifies boundaries between implementation climate and adjacent constructs (culture, context, readiness), reducing conceptual and measurement ambiguity.
- Maps attributes to CFIR constructs to support diagnosis of determinants and selection of targeted implementation strategies.
- Summarizes quantitative (ICS, ICM, equity-oriented tools) and qualitative approaches, offering guidance on when and how to assess implementation climate.

Background

Delivering consistently high-quality care remains a universal goal, yet the translation of evidence-based interventions (EBIs) into daily practice is inconsistent and slow [1, 2]. Implementation climate has emerged as a particularly important, and potentially modifiable, organizational determinant of implementation success [3, 4]. Originating in organizational research, implementation climate can be seen as a strategic construct that reflects how policies, leadership, and resources align to promote the integration of EBIs into routine clinical practice [3–8]. It broadly describes the shared perceptions among employees within an organization about how strongly the adoption and use of new innovations are supported [3–8].

Studies have shown that a strong implementation climate could be positively associated with clinician attitudes and behavior, and enhance the uptake and sustainability of EBIs [9–12]. For instance, a recent study demonstrates that clinicians' perceptions of organizational support for EBIs directly influence the implementation success in maternity care settings [13]. Similarly, Sklar and colleagues [14] emphasize that implementation climate interacts with leadership practices to create an ecosystem that promotes innovation,

thereby addressing systemic barriers to health equity. In low-resource settings, implementation climate has been shown to be instrumental in advancing initiatives such as community-based healthcare models [15].

Context in implementation science refers to the broad set of environmental, organizational, and social factors that influence the uptake of EBIs. It includes both inner and outer settings (including inner setting determinants such as leadership, resources, and culture; and outer setting determinants such as policy, external pressure and local conditions), which has been widely studied for its role in shaping implementation success [16–18]. This growing body of research emphasizes that context is dynamic and multi-dimensional, affecting how individuals engage with and apply research evidence in practice. While *implementation climate* focuses on shared perceptions of EBI use within a specific setting, *context* provides a broader lens, recognizing that implementation processes are deeply embedded in the systems and environments in which they occur [18]. Therefore, a good understanding this interplay between implementation climate and these contextual determinants is essential to design implementation strategies that achieve their intended goals.

Despite its growing prominence, implementation climate remains conceptually and operationally inconsistent in the healthcare literature. First, it is frequently conflated with adjacent constructs such as organizational culture, general organizational climate, context, and organizational readiness for change. Second, studies variably include (or omit) sub-dimensions of implementation climate (e.g., incentives, leadership, compatibility) [13–15]. These ambiguities can hinder measurement, cross-study synthesis or comparisons and the design of context-tailored implementation strategies that leaders can deploy to improve care quality [19–21]. To address these challenges, we conducted a scoping review embedded within a concept analysis. Our aims were fourfold:

1. Synthesize how implementation climate is defined across the healthcare literature;
2. Identify the defining attributes, antecedents, and consequences of implementation climate, including implications for implementation and workforce outcomes;
3. Differentiate implementation climate from related constructs, such as organizational culture and organizational readiness for change;
4. Synthesize approaches to measuring implementation climate.

Method

We conducted a scoping review in accordance with the Joanna Briggs Institute (JBI) methodology for scoping reviews [22] and reported the results following the PRISMA-ScR checklist [23] (see Supplementary file). To deepen our understanding and provide conceptual clarity, the review was embedded within a concept analysis methodology, i.e., the Walker and Avant's approach [24]. Walker and Avant's method of concept analysis is a method specifically designed to clarify, define, and distinguish complex or evolving concepts in healthcare research [25–27]. This method consists of eight steps: selecting a concept, determining its purposes, identifying its uses, its defining attributes, constructing a model case, as well as additional cases of the concept, identifying antecedents and consequences, and defining measurement indicators. Table 2 in [Appendix 2](#) presents further details of how this methodology was incorporated in this review. This systematic approach is relevant to establish common understanding of concepts and their application across different contexts [25–27].

This combined approach was chosen for its methodological rigor and complementarity: the scoping review enabled a comprehensive mapping of the literature, while the concept analysis facilitated the synthesis and refinement of conceptual boundaries. In parallel, we used the Consolidated Framework for Implementation Research (CFIR) 2.0 [28] as a synthesizing framework during data interpretation, particularly to inductively map the defining attributes of implementation climate to relevant constructs. Together, they provided a robust foundation for examining the implementation climate, consistent with prior seminal work, such as that of Squires et al. [16].

Eligibility criteria

Eligibility was framed with the Population–Concept–Context (PCC) mnemonic recommended by JBI for scoping reviews. We included both empirical (quantitative, qualitative, mixed-methods, reviews) and theoretical literature that explicitly defined, measured, or discussed implementation climate. Studies focusing solely on general organizational climate or culture outside the context of implementing a change, or those that did not distinguish between implementation climate and related constructs, were excluded. No restrictions were placed on study design, population, or publication year.

Search strategy

In collaboration with an experienced librarian, a targeted search strategy was drafted using the following terms: Title (TI): ("Implementation Climate" OR receptive* OR accept* OR willing* OR welcom* OR embrac* OR ready OR readiness* OR responsive* OR favorable*

OR openness OR adopt*) NOT TI acceptability. Abstract (AB): ("Implementation Climate" OR receptive* OR accept* OR willing* OR welcom* OR embrac* OR ready OR readiness* OR responsive* OR favorable* OR openness OR adopt*) NOT AB acceptability. Title (TI) Modifier: implement*. A systematic search was conducted on November 28, 2024, across the following databases to identify empirical studies and theoretical papers on implementation climate: Medline, Embase, PsycINFO, and CINAHL. We also conducted backward citation tracking and searched grey literature and key journals in implementation science (see full search strategy in [Appendix 1](#)).

Selection process

All records were imported into the Covidence systematic review software [29] for the screening of titles and abstracts, as well as the final selection of studies. Two independent reviewers screened each article for relevance and conflicts were resolved through a discussion. The article selection process was documented in a PRISMA flow diagram [30].

Data extraction

Data extraction was carried out using a structured template developed in Microsoft Excel, informed by Walker and Avant's method. For each included article, the first author, DNE extracted data on the study's aim, setting, population, methodology, definitions of implementation climate, attributes, antecedents, consequences, and measurement instruments used. A second reviewer checked each extracted data to ensure reliability.

Data synthesis

We applied an inductive thematic analysis approach to synthesize the extracted data. The analysis was led by the first author (DNE), who conducted multiple iterative readings to ensure internal consistency and conceptual saturation. To bolster analytic rigor, the senior author (GF) independently reviewed the thematic categories and mapping to Walker and Avant's components, followed by iterative peer debriefings to refine interpretations and ensure agreement. This involved multiple iterative readings to identify recurring patterns and classify them into preliminary thematic categories corresponding to Walker and Avant's core components: defining attributes, antecedents, consequences, and measurement indicators. This process allowed for the development of a set of defining characteristics and operational indicators of implementation climate, which could then be used to construct the model, borderline, related, or contrary cases. Following Walker and Avant's method, the defining attributes derived from the review were used to

construct model, case. A model case was defined a priori as an empirical example demonstrating defining attributes of implementation climate. Data extracted from the included articles were systematically charted and synthesized into themes to identify: (1) how implementation climate has been defined and applied over time; (2) its defining attributes; (3) measurement approaches; (4) conceptual boundaries with related constructs; and (5) antecedents and consequences. The analysis proceeded iteratively, with recurring patterns across empirical and theoretical studies grouped inductively into conceptual categories corresponding to these components. Attributes, antecedents, consequences, and measures were retained when they were consistently described across multiple sources rather than in specific studies. Findings were also synthesized into a conceptual diagram mapping the interplay between antecedents, defining attributes, consequences, and measurement indicators, illustrating the theoretical structure of implementation climate across diverse implementation settings. ChatGPT 4o [31] was used solely to enhance coherence and readability during final proofreading. All conceptual and thematic analyses were conducted independently by the research team.

Results

Article selection

A total of 205 records were initially identified through database searches, grey literature searches and hand searches. After the title and abstract screening was completed, we retrieved 107 full-text articles, which were assessed for eligibility. Following full-text review, 39 articles were included in the final analysis. This process is illustrated in the PRISMA flow diagram (Fig. 1).

Characteristics of included sources

Table 3 in Appendix 2 presents the 39 included sources, encompassing 24 quantitative studies, seven qualitative studies, five theoretical or review papers and three mixed-methods studies. Across included sources, evidence was predominantly from North America (especially the US), with additional work from Europe, Australia, and sub-Saharan Africa. Publications spanned 1996–2024. Studies were concentrated in behavioral/mental health and substance use services, with additional settings including hospital care, primary care, community health, child welfare, public health departments, and other organizational contexts.

Overview of results

Findings are presented in the sequence of Walker and Avant's concept analysis components. We first summarize definitions and uses of implementation climate,

then synthesize defining attributes and measurement approaches, clarify boundaries with adjacent constructs, and finally describe antecedents and consequences. Figure 2 provides an overview of the resulting conceptual structure.

What is implementation climate, as defined in healthcare?

We begin by examining how implementation climate has been defined and conceptualized over time, tracing its origins in organizational research and its subsequent adaptation within healthcare and implementation science.

From the review, we coded 9 of the 39 studies as having definitions of implementation climate that included the extent to which staff perceive they were expected to use EBIs [3, 7, 9, 13, 32–36]. The concept of implementation climate was introduced in organizational research to foster a supportive environment for innovation within organizations [3]. Klein and Sorra are credited with introducing the concept in organizational research [3]. They focused on employees, and defined the concept as “employees’ shared perceptions of the extent to which their use of a specific innovation is rewarded, supported, and expected within the organization” [3]. This phrasing was later adopted and expanded to broader organizational members by Weiner in 2009, as “the extent to which organizational members perceive that use of a specific innovation is rewarded, supported, and expected within the organization” [35].

Similarly, Bunger et al. proposed that implementation climate is the belief among employees that EBI use is (1) expected, (2) supported, and (3) rewarded [34]. Implementation science scholars have cited and expanded these definitions, particularly Weiner’s subsequent work attempting to clarify the meaning on the concept and differentiate it from other constructs, added that the concept is innovation-specific and strategic in nature, unlike molar climate or culture [36], and as reflected in frameworks such as the CFIR [28, 37]. Implementation climate was defined a *shared organizational construct* that captures employees’ and organizational members’ perceptions of how innovations, particularly EBIs, are expected, supported, and rewarded within their workplace [36]. It is shared because it reflects the perspectives of individuals within an organization; suggesting that its measurement also has to be a cumulative summary [3, 9, 13, 38].

Williams et al. [6] defined it as the degree to which an organization prioritizes the adoption and application of EBIs through explicit policies and practices that encourage their use. Similarly, Ehrhart et al. [4] emphasized that an effective implementation climate involves organizational actions that go beyond mere verbal commitment, creating an environment where EBIs are viewed as a

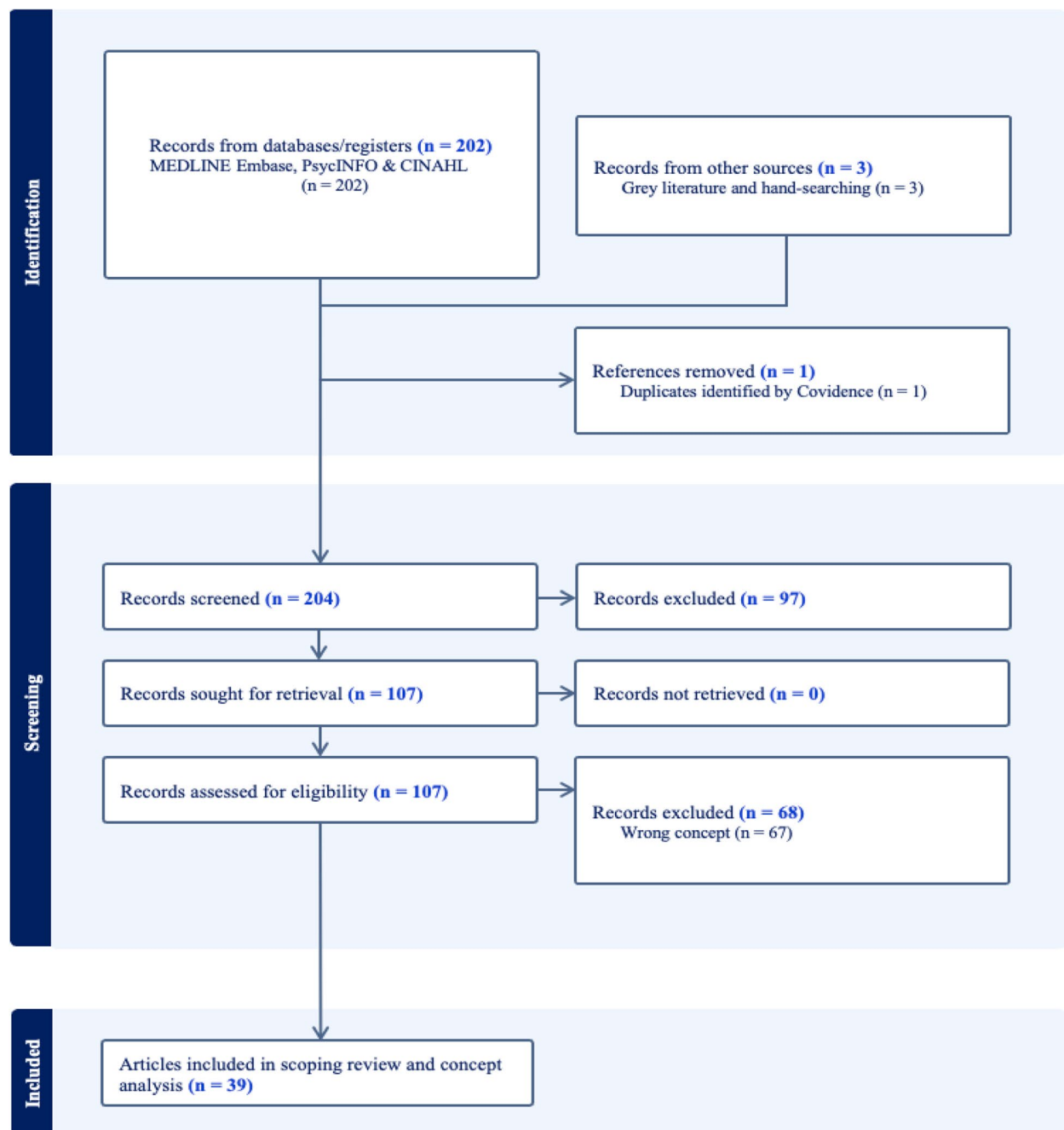


Fig. 1 PRISMA flow diagram

genuine priority. These definitions also include strategic elements such as hiring practices [4, 39], ongoing training opportunities [11, 12], and employee recognition programs [4, 8, 14], all of which contribute to a supportive climate for innovation adoption.

Early applications of implementation climate focused on industrial and corporate settings. With the rise of EBIs and implementation science, the concept expanded into healthcare and public health, gaining prominence

as an critical factor in bridging the gap between research and practice, adopted in frameworks like the CFIR [28, 37] and operationalized through psychometric studies [40]. By the 2000s, measurement tools were being conceptualized and developed to quantify the construct to enable researchers and practitioners to assess and strengthen implementation climate in mental health, community health, and public health [4, 36].

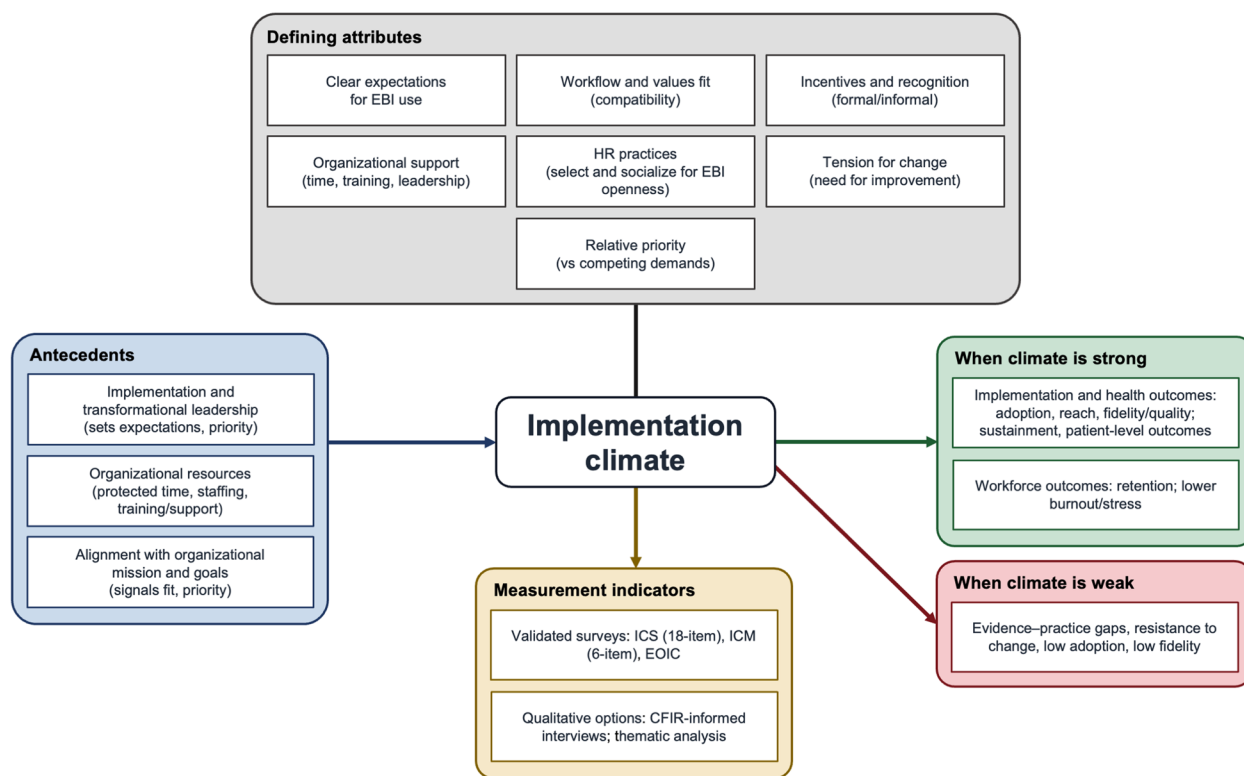


Fig. 2 Conceptual structure of implementation climate, its defining attributes, antecedents and consequences

What are the defining attributes of implementation climate?

Building on these definitions, we next identify the defining attributes of implementation climate that recur across the literature and distinguish it as a strategic, innovation-specific construct. From the reviewed studies, we coded 21 of 39 that illustrate that implementation climate can be characterized according to seven primary attributes, extracted from the studies reviewed, as summarized and discussed below [4, 8, 9, 12, 14, 15, 32, 34, 36, 41–51]. These attributes have been mapped to corresponding constructs in the CFIR 2.0 [28], as outlined in Table 4 in Appendix 2. We describe each of these attributes below.

The first attribute we identified is the extent to which staff perceive that they are expected to use EBIs (mapped to CFIR 2.0 construct *Mission Alignment*). When organisations broadcast these expectations through policies, performance dashboards, and routine supervisory messages, clinicians interpret EBI delivery as both important and true to the organisation's mission [9, 34, 36, 52]. Jacobs et al. [9] and Aarons et al. [47] demonstrate that when expectations are articulated through leadership, they can shape provider engagement and promote consistent implementation behaviors across service systems.

The second attribute is organisational support for EBI use (CFIR: *Available Resources* and *Access to Knowledge & Information*). Tangible enablers such as staffing, protected time, funding and ready access to training or on-call consultation remove day-to-day barriers and foster psychological safety [4, 8, 12, 32, 45, 46, 52]. When support is sustained, evidence shows that it enhances both adoption and fidelity of EBIs [9, 15, 53, 54]. In settings ranging from behavioural-health agencies to VA hospitals, stronger "support" scores predicted better acceptability, feasibility and fidelity [12, 53, 55].

The third attribute concerns rewards and recognition for using EBIs (CFIR: *Incentive Systems*) [8, 9, 14, 15, 42]. Symbolic praise, career advancement and modest financial incentives reinforced desired behaviour in school-health and primary-care teams [4, 42]. Yet an over-emphasis on cash payments was associated with weaker EBI knowledge and greater perceived divergence from routine practice, suggesting that incentives must be balanced and value-congruent [12]. Furthermore, Sklar et al. [14] and Vis et al. [56] show that when clinicians receive assessment on their performance or implementation targets, they are more likely to sustain high-quality delivery.

The four other attributes identified are less closely aligned with the traditional definitions of implementation climate, but are still recurring in the literature. The fourth attribute is compatibility, or how well an EBI aligns with the values, workflows, culture, and needs of the organization and its staff (CFIR: *Compatibility*) [15, 57, 58]. Studies often show that where fit is high, uptake is smoother; where it is low, implementation stalls [15, 57]. The fifth attribute is the relative priority given to an EBI (CFIR: *Relative Priority*) [8, 15, 57, 58]. When an intervention clearly outranks competing initiatives for leadership attention, time and resources, staff redistribute effort accordingly. As reported in Faro [58] and Sklar [8], prioritization can be effectively communicated through strategic alignment, resource allocation, or consistent messaging from leadership. The sixth attribute is tension for change, or a shared sense that the status quo is untenable (CFIR: *Tension for Change*). Studies such as Wong [57] and Faro [58] illustrate how high tension for change creates a sense of momentum and buy-in for implementation efforts, especially in settings that confront performance gaps or public health disparities. Without sufficient tension, even well-designed EBIs may fail to gain traction or be perceived as unnecessary. Finally, the seventh attribute involves HR policies that select for openness to EBIs, often labelled “selection for EBI” in climate measures (aligning with CFIR: *Work Infrastructure* under Structural Characteristics). Hiring, onboarding and role design that privilege evidence-based skills embed expectations structurally; this facet powerfully discriminated high- from low-climate organisations in the original Implementation Climate Scale and remained reliable in later validations [4, 40, 59].

A model case demonstrating how these attributes can co-occur in a real-world setting is presented in Table 1.

How is implementation climate measured?

We next present and describe the approaches used to measure implementation climate in healthcare and public health settings. Eighteen from 39 studies in our review described a range of measurement indicators and instruments [4, 9, 11, 13, 15, 32, 36, 43, 44, 47, 51, 60–66]. These measures have evolved over the past two decades to include both quantitative instruments and qualitative strategies that capture its multidimensional nature. The Table 5 in Appendix 2 summarizes the quantitative and qualitative measurement indicators of implementation climate identified in this analysis.

The Implementation Climate Scale (ICS) developed by Ehrhart et al. in 2014, is an 18-item tool that assesses six key dimensions of implementation climate [67]. Across multiple studies, the ICS has demonstrated strong psychometric properties, including high internal consistency (Cronbach’s alpha = 0.81–0.98) and a stable factor structure validated through confirmatory factor analysis across diverse clinical settings such as mental health, nursing, and child welfare [4, 59, 61]. Systematic reviews e.g. Powell et al. [68] have rated it as having the strongest evidence base among implementation climate measures, supporting its convergent, discriminant, structural, and predictive validity. The ICS has been widely validated in U.S. contexts, including mental health agencies [4], child welfare services [59], substance use treatment [69], maternity care [70], and public hospitals [61]. Internationally, it has been validated in Norwegian outpatient mental health clinics [71], and in German psychiatric and psychosomatic clinics [40], confirming its reliability and cross-cultural applicability.

The Implementation Climate Measure (ICM), developed by Jacobs et al. in 2014, is a concise six-item tool that assesses the extent to which EBI use is expected, supported, and rewarded within an organization [9]. It has shown good internal consistency in U.S.-based

Table 1 Model case: building a favourable implementation climate (Oregon Community Programs) [14]

Context. Oregon Community Programs (OCP) is a nonprofit mental health organization that implemented a digital measurement-based care system for children and families (Sklar et al.)
Seven levers OCP pulled (mapped to the defining attributes)
Expectations. OCP made expectations for using the intervention explicit in routine work processes and in supervision, so staff understood that use was part of “how we deliver care here”
Support. OCP provided ongoing training and made practical, tailored resources available to help clinicians use the system in real time
Feedback and accountability. Supervisors reinforced implementation through regular feedback loops, using check-ins and performance conversations to sustain attention to use and quality
Recognition and incentives. OCP used short-term recognition (e.g., raffles) and performance-based incentives to reinforce desired behaviors and keep momentum during rollout
Relative priority. Leaders embedded the intervention within the organization’s mission and operational routines, which signaled that it was a genuine organizational priority rather than a temporary project
Workflow fit. The intervention was integrated into day-to-day workflows so that it was not experienced as an “add-on,” but as part of standard practice
HR embedding. OCP aligned clinician job descriptions and performance evaluations with the intervention, which institutionalized expectations and reinforced sustainment
Take-home message. OCP built a strong implementation climate by aligning clear organizational signals (expectations and priority), practical supports (training and resources), and reinforcement mechanisms (recognition and HR systems)

studies and is particularly useful in time-constrained settings. In a cluster randomized trial by Aarons et al., the ICM demonstrated sensitivity to climate changes following leadership interventions [72]. To ensure construct validity, Weiner et al. emphasize assessing within-group agreement, as high variability in perceptions implies the absence of a shared implementation climate [36]. Woodward et al. further support the ICM's use at both clinician and group levels, noting that aggregated scores often better reflect organizational climate [73].

In response to growing demands for equity-focused implementation, Stamatakis et al. [66] developed the Equity-Oriented Implementation Climate (EOIC) measure, a context-specific tool designed to assess the capacity of health departments to implement health equity strategies. The tool was informed by the CFIR and prior equity initiatives, it captures four relevant subdomains: relative priority, tension for change, compatibility, and organizational incentives and rewards. The measure showed strong psychometric performance, with item-level intra-class correlation coefficients ranging from 0.55 to 0.85 and an overall reliability of 0.82.

Beyond these scales, some qualitative and mixed-method approaches have also been used to empirically assess implementation climate in complex or resource-constrained settings. Across the studies reviewed, four studies used qualitative approaches, some of which included semi-structured interviews guided by CFIR inner setting domain to explore constructs such as tension for change, compatibility, and relative priority [15, 57, 58], another study used concept mapping workshop [56], to explore experiences and perceptions of participants about implementation climate and how elements like role clarity, feedback mechanisms, and strategic alignment function as real-world indicators of implementation climate.

How is implementation climate different from related constructs?

To clarify and delineate conceptual boundaries, we then compare implementation climate with related constructs, including organizational climate, organizational culture, and organizational readiness for change. We coded 8 of the 39 studies that discussed related concepts and cases to implementation climate [3, 4, 10, 33, 36, 42, 52, 74]. These studies discuss a number of related concepts such as: organizational climate, organizational culture and organizational readiness. Organization climate was described as a concept that shares overlapping features with implementation climate but differs in its focus and specificity.

From the review, organizational climate refers to the shared meanings that organizational members attach to events, policies, practices, and procedures they experience, as well as the behaviors they observe being rewarded, supported, and expected [4]. Additionally, Williams et al. [74] distinguish implementation climate from general or molar organizational climate, noting that workplaces without a strategic emphasis on specific EBIs fail to cultivate a climate conducive to the implementation of that innovation. Similarly, organizational culture involves the foundational values and assumptions that guide behavior and decision-making within an organization [33].

While these constructs overlap with implementation climate in their emphasis on collective perceptions and organizational dynamics, they differ in their scope and application. Implementation climate on the other hand, has a strategic focus on promoting the adoption and use of innovations, particularly EBIs. According to Weiner, Belden [75], it is also specific for each innovation. For example, organizational culture broadly addresses values such as trust, support, and flexibility [52], whereas implementation climate narrows attention to specific policies, practices, and procedures that support the adoption of a particular innovation [4]. Additionally, implementation climate is descriptive rather than evaluative, focusing on employees' perceptions of the organization's explicit support for innovation, rather than their satisfaction with organizational policies or practices [3].

Another closely related concept is organizational readiness for change, which refers to the shared psychological state of commitment and confidence among members regarding their ability to implement change [42]. While readiness focuses on the preparatory stage of implementation, addressing motivation and capacity for change, implementation climate is an ongoing construct that shapes the context for innovation once it has been introduced. Additionally, readiness is usually conceptualized as a broader, multifaceted construct that encompasses elements of motivation, capacity, and contextual preparedness prior to implementation [38, 76]. Within some measurement frameworks, implementation climate has been treated as a subscale or component of readiness, reflecting the degree to which change is expected, supported, and rewarded during the implementation process [76].

What shapes implementation climate (antecedents)?

Antecedents were identified by coding extracted data for conditions described as preceding or shaping the development of implementation climate and grouping these inductively into higher-order categories when similar patterns recurred across studies. We coded 9 of the 39

studies which described these antecedents [9, 10, 32, 34, 36, 39, 41, 74, 77].

The studies reviewed suggest that the establishment of a strong implementation climate relies on specific antecedents that create the conditions necessary to promote the adoption and sustainment of EBIs. The first essential factor is leadership (or leadership support), which operates at multiple levels within an organization. Aarons et al. [39] emphasize the role of implementation and transformational leadership behaviors in shaping an implementation climate that motivates and sustains innovation efforts. Leaders must actively engage in the process, demonstrating commitment and accountability by enacting policies, providing resources, and communicating expectations. Middle managers and supervisors further bridge organizational hierarchies, translating executive-level priorities into actionable steps for front-line staff [34]. This multi-tiered leadership engagement fosters a climate where employees perceive that innovation use is both valued and expected.

Another essential antecedent is adequate resourcing. This includes the availability of time, funding, training, and materials to support implementation efforts. Weiner et al. [36] highlighted the importance of providing high-quality training, technical assistance, and documentation to enhance employees' skills and knowledge. The study further stated that redesigning workflows to integrate innovations and providing employees with time to learn and adopt new practices are crucial for removing obstacles to implementation. Ehrhart et al. [4] identified six dimensions of implementation climate that depend on resourcing, such as educational support and rewards for EBI use. All these define organizations with proficient cultures and robust human resource practices, who are more likely to allocate these resources effectively to foster a supportive environment for implementation [10].

Alignment with organizational goals also emerged as an antecedent of implementation climate, referring to the extent to which an EBI is perceived as congruent with an organization's mission, strategic priorities, and performance objectives. Across studies, implementation climate was more favorable when EBIs were explicitly linked to organizational goals such as quality improvement targets, accreditation requirements, or system-level mandates, thereby legitimizing EBI use and elevating its priority relative to competing demands [9, 34, 36, 41]. This alignment was communicated through policies, and performance expectations, that shape staff perceptions that EBI delivery is expected and mission-consistent [9, 36, 47]. Alignment with organizational goals also reinforces other defining attributes of implementation

climate, including compatibility and relative priority, as interventions that are strategically aligned receive greater leadership attention, time, and resources, facilitating sustained implementation [8, 15, 44, 65].

What does implementation climate influence (consequences)?

Finally, we synthesize evidence on the consequences of implementation climate, focusing on downstream effects for implementation effectiveness, workforce outcomes, care delivery and health outcomes. We coded 12 studies which explicitly described outcomes resulting from the presence or absence of a supportive implementation climate and synthesizing these outcomes into recurring categories [3, 10, 11, 34, 45, 48, 74, 78–81], and 8 studies that discuss the health impacts [9–11, 13, 15, 49, 74, 77]. Six consequences were identified and are summarized in Fig. 2.

Positive consequences included successful innovation adoption, improved organization performance and enhanced implementation outcomes, while negative consequences such as evidence-practice gaps, resistance to change and poor adoption rates for new EBIs were observed when implementation climate was weak or unfavorable. An early study included in the review reported that positive implementation climates support innovation use by developing employee skills, providing incentives, and addressing adoption barriers, consistent with the original definition by Klein and Sorra. Several studies identified in the review reported that implementation climate directly influence the effectiveness of innovation adoption within organizations [10, 45, 48, 74, 78, 81, 82]. A strong and positive implementation climate was also reported to promote consistent and high-quality innovation use by organizational members when employees perceive that innovation is expected, supported, and rewarded [5, 36]. Furthermore, a randomized control trial conducted in 21 clinics serving children and youths in the United States also found that implementation climate mediated improvements in measurement-based care fidelity [80]. In line with Klein and Sorra [3], who reported that positive implementation climates ensure innovation use by developing employee skills, incentivizing use while discouraging avoidance, and removing barriers to adoption. Furthermore, the findings suggest organizations with strong implementation climates demonstrate higher implementation effectiveness, better overall implementation outcomes and organizational performance [78]. For instance, a study by Woodard et al. [73] indicated that higher implementation climate scores

positively influence clinicians' attitudes, organizational structures, leadership practices, policies, and resource allocation leading to greater openness to change and improved organizational processes.

Studies have demonstrated that implementation climate directly impacts healthcare delivery and health outcomes by shaping employee behaviour and organizational effectiveness. In mental health settings, for instance, a supportive implementation climate has been shown to reduce therapist burnout among clinical staff, acting as a protective organizational resource [55]. Similarly, Woodard and colleagues found that a strong implementation climate enhanced clinicians' attitudes toward exposure therapy but only when paired with training and consultation, highlighting its function as a facilitating condition for behaviour change [11]. In low-resource primary care contexts, Ludwick and colleagues identified implementation climate as a determinant of team participation and readiness. In this setting, sub-constructs such as compatibility, relative priority, and organizational incentives influenced how frontline staff and administrators interacted with new care models [15]. Another study also demonstrated that clinicians in organizations with a strong implementation climate exhibit greater use of EBIs during patient interactions, thereby improving the delivery of evidence-based interventions Williams, Becker-Haimes [74]. Further studies have also shown that positive changes in implementation climate can reduce clinician turnover, ensuring workforce stability and continuity in public health programs Williams and Beidas [10], as well as enhancing the effectiveness of EBI integration Jacobs, Weiner [9]. These studies emphasize the value and usefulness of implementation climate not only as a predictor of implementation success but also as a dynamic construct.

Conversely, across studies, poor implementation climate was associated with persistent evidence–practice gaps, resistance to change, and low innovation adoption rates [42]. In a study conducted in Ethiopia, poor implementation climate directly undermined Family Health Team (FHT) adoption, as clinicians' willingness to participate was constrained by unclear expectations, limited leadership engagement, and competing organizational priorities [15]. Another study by Hamm et al. noted that poor implementation climate hinders innovation use and widens the gap between evidence and practice [13]. Positive implementation climates also enhance the perceived acceptability, feasibility, and appropriateness of new tools and treatments, as illustrated by Egeland et al. [77].

Discussion

This scoping review and concept analysis provides a structured synthesis of the healthcare literature on implementation climate and clarifies its defining attributes, antecedents, consequences, and measures. We identified seven recurring attributes of implementation climate, including clear expectations of EBI use, robust organisational support, incentives and recognition, perceived fit with workflows and values, relative priority, tension for change and strategically aligned HR practices that select and socialize staff for EBI openness. These attributes informed our synthesized definition of implementation climate as “the shared perception among staff that using a specific evidence-based intervention is (1) an organisational priority, (2) supported through resources and HR processes, (3) reinforced by incentives and recognition, and (4) aligned with everyday values and workflows.”

Our findings reinforce core implementation scholarship, including the CFIR [28] and Klein & Sorra's model [3], by positioning implementation climate as a strategic, innovation-specific construct that links organisational conditions to real-world use of EBIs [36]. The dimensions proposed by Ehrhart et al. [4] (e.g., focus, educational support, rewards, and selection) align closely with the core “expected, supported, rewarded” conceptualization. At the same time, our synthesis highlights that compatibility, relative priority, and tension for change recur across applied healthcare settings and help sharpen the boundary between implementation climate and broader constructs such as organisational culture, molar climate, context, or readiness for change [3, 34]. This distinction matters because organisations may have a generally positive culture yet still fail to sustain a particular EBI if expectations, support, reinforcement, and workflow fit are not aligned to that innovation.

Across studies, leadership behaviours, deliberate resourcing, and alignment with organisational goals repeatedly emerged as conditions that shape the development of implementation climate [3, 34, 36]. In practice, these antecedents function as signals: they communicate what is prioritised, what is supported, and what is expected in routine care. Multi-level leadership engagement, executive commitment translated through middle management into frontline expectations, appears particularly important for making climate visible and durable [34, 39].

Implementation climate was found to be relevant to both implementation success, broader workforce and service outcomes. Across studies, a favourable implementation climate was associated with improved EBI

uptake and fidelity, while weak implementation climate was associated with evidence–practice gaps, resistance to change, and stalled adoption [15, 34, 42]. Importantly, consequences extended beyond implementation outcomes alone. Several studies linked stronger climates to workforce outcomes such as lower burnout and stress, stronger organisational commitment, and improved retention, with downstream implications for service quality and patient outcomes.

Measurement findings align this synthesis. Validated tools such as the ICS, ICM, and related measures capture key dimensions (expectations, support, incentives/recognition, and related facets such as priority and fit) that correspond closely to the attributes identified in this review. Future work could strengthen evaluation by pairing staff perception measures with qualitative methods and objective indicators (e.g., protected time, supervision intensity, training hours, turnover) to triangulate climate and reduce reliance on self-report alone. Researchers should also ensure determinant frameworks used for diagnosis and strategy selection cover the core dimensions of implementation climate (e.g., CFIR) rather than focusing primarily on deep-seated culture or narrower determinants [83]. Finally, implementation strategy design [19, 21, 84, 85] may benefit from explicitly mapping Expert Recommendations for Implementing Change (ERIC) strategies [86] onto climate dimensions (e.g., leadership engagement to set expectations; facilitation/training to build support; recognition/incentives to reinforce use; workflow redesign to ensure fit).

Strengths and limitations

A key strength of this analysis is its systematic approach to synthesizing a diverse body of literature, offering conceptual clarity and empirical grounding for a widely used but often loosely defined construct. The analysis integrates both qualitative and quantitative evidence from 39 sources, many of which span various geographic and organizational contexts, enhancing the robustness of the findings. Although we searched grey literature, none met inclusion criteria; therefore the synthesis reflects peer-reviewed evidence. The primary focus on health contexts may limit generalizability to other sectors.

Conclusion

This concept analysis has helped clarify the defining attributes, antecedents, consequences, and measurement tools of implementation climate, offering both theoretical grounding and practical direction for implementation science. A strong implementation climate appears to be a critical organizational condition for fostering the adoption of EBIs and addressing the persistent evidence-to-practice gap. These findings can support organizations in designing more supportive environments for EBI implementation, ultimately contributing to improvements in health systems and public health outcomes.

Appendix 1

Search strategy

1. PsychInfo

Database: APA PsycInfo <1987 to October 2024 Week 5> **Search**

Strategy: 1 ("Implementation Climate" or receptive* or accept* or willing* or welcom* or ebrac* or ready or readiness* or responsive* or favorable* or openness or adopt*) not acceptability).ti. and ("Implementation Climate" or receptive* or accept* or willing* or welcom* or ebrac* or ready or readiness* or responsive* or favorable* or openness or adopt*).ab. and implement*.ti. (542) **2** limit 1 to "remove medline records" (390)

2. Medline

Database: Ovid MEDLINE(R) ALL <1946 to November 07, 2024>

Search Strategy: 1 ("Implementation Climate" or receptive* or accept* or willing* or welcom* or ebrac* or ready or readiness* or responsive* or favorable* or openness or adopt*) not acceptability).ti. and ("Implementation Climate" or receptive* or accept* or willing* or welcom* or ebrac* or ready or readiness* or responsive* or favorable* or openness or adopt*).ab. and implement*.ti. (950)

3. Embase

Database: Embase <1996 to 2024 Week 44> **Search Strategy:**

1 ("Implementation Climate" or receptive* or accept* or willing* or welcom* or ebrac* or ready or readiness* or responsive* or favorable* or openness or adopt*) not acceptability).ti. and ("Implementation Climate" or receptive* or accept* or willing* or welcom* or ebrac* or ready or readiness* or responsive* or favorable* or openness or adopt*).ab. and implement*.ti. (1019) **2** limit 1 to "remove medline records" (334)

4. CINAHL

(TI ("Implementation Climate" or receptive* or accept* or willing* or welcom* or ebrac* or ready or readiness* or responsive* or favorable* or openness or adopt*) NOT TI acceptability) AND (AB ("Implementation Climate" or receptive* or accept* or willing* or welcom* or ebrac* or ready or readiness* or responsive* or favorable* or openness or adopt*) NOT AB acceptability) AND TI implement*

Limiters - Exclude MEDLINE records

Expanders - Apply related words; Apply equivalent subjects

Search modes - Proximity View Results (224)

Appendix 2

Table 2 The eight steps followed in the context of this study, combining scoping review and concept analysis methodologies

Walker and Avant step	Core actions in this study	Outputs
1. Select the concept	Chose implementation climate because it is a pivotal, yet ill-defined determinant of evidence-based intervention (EBI) adoption in health care.	Rationale statement in Introduction.
2. Determine the purpose	Clarify, operationalise, and bound the construct; differentiate it from related concepts.	Explicit objectives driving Methods & Discussion sections.
3. Identify all uses	Searched and selected empirical/theoretical papers, frameworks, and instruments using JBI's scoping review approach, across health care, behavioural health, public health, and management fields; mapped synonyms and near-synonyms.	Comprehensive corpus for analysis; semantic map of terms.
4. Determine defining attributes	Conducted inductive thematic synthesis to isolate recurring characteristics.	Cluster of core attributes: <i>expectations, support, rewards, compatibility, priority, tension for change.</i>
5. Construct a model case	Selected a published case (Oregon Community Programs) that exhibits all defining attributes.	Illustrative vignette demonstrating optimal climate.
6. Construct additional cases	Identify related cases to mark conceptual boundaries.	Clarified how implementation climate differs from organisational culture, readiness, etc.
7. Identify antecedents and consequences	Mapped antecedents, defined as organizational and contextual pre-conditions that precede and facilitate the development of implementation climate, and consequences, defined as outcomes resulting from the presence (or absence) of a strong implementation climate.	Antecedent-attribute-consequence logic model.
8. Define measurement indicators	Collated quantitative, qualitative and mixed-methods approaches and indicators used to measure the construct of implementation climate.	Toolbox of validated scales and qualitative guides for practitioners and researchers.

Table 3 Characteristics of included articles ($N = 39$)^a

First author, year, country	Study design, sample and setting	Study Aim	IC focus ^b	Key finding(s)
Aarons GA, 2024, USA [72]	Cluster RCT – 113 service providers/12 SUD clinics	Test LOCI effects on leadership, IC, citizenship, EBI reach	Emp. referent Measure-comparison, Def. attribute,	6-item ICM detected positive IC change; 18-item ICS did not → shorter tool more sensitive in this context.
Allen JD, 2020, USA [52]	Cross-sectional – 66 parishes/faith-based orgs	Compare adopters vs non-adopters of cancer-control EBIs	Def. attribute (Change commitment), Related concept	“Shared resolve” among parishioners predicted trial participation; highlights expectations dimension.
Arthur K, 2020, South Africa [42]	Mixed-methods – 12 schools	Identify org. readiness & contextual factors in school health intervention	Antecedent/Conseq., Def. attribute, Related concept	Poor comms & stakeholder involvement weakened IC; educational support & non-monetary rewards strengthened it.
Bunger AC, 2019, USA [5]	Qualitative – 24 supervisors/child-welfare	How supervisor roles influence IC domains	Antecedent, Definition, Def. attribute	Supervisors shaped IC by carrying out four roles (diffusing, synthesizing, mediating, and selling). These roles shaped <i>expectations</i> and <i>support</i> facets of IC.
Egeland KM, 2023, Norway [77]	Cross-sectional – 356 therapists/spec. MH clinics	Associations between leadership, IC, and EBI acceptability, appropriateness, and feasibility	Antecedent & Mediation	IC mediated 30-40 % of leadership effects on perceived acceptability and feasibility; rewards sub-scale weakest.

First author, year, country	Study design, sample and setting	Study Aim	IC focus ^b	Key finding(s)
Ehrhart 2014a, NA [32]	Review article	Understand how an organization's environment affects its functioning and performance.	Related concepts, Def. attribute, Emp. referent	Organizational climate: shared meaning organizational members attach to the events, policies, practices, and procedures they experience and the behaviors they see being rewarded, supported, and expected.
Ehrhart, 2014b, United States [4]	Cross-sectional – 350 clinicians/MH agency	Develop concise strategic IC scale	Emp. Referent, Definition, Def. attribute	18-item ICS with 6 dimensions; $\alpha = 0.94$: 1) focus on EBI, 2) educational support for EBI, 3) recognition for EBI, 4) rewards for EBI, 5) selection for EBI, and 6) selection for openness.
Ehrhart, MG, 2016, USA [59]	Cross-sectional – 762 staff/public child-welfare	Validate ICS in non-MH sector	Emp. Referent, Def. attribute	Factor structure stable; supports cross-sector transportability of ICS.
Ehrhart, MG, 2019, USA [69]	Cross-sectional – 658 providers/SUD orgs	Validate ICS in SUD settings	Emp. referent	Reliability & CFA identical to MH samples; shows scale robustness in addiction care.
Ehrhart, MG, 2021, USA [61]	Cross-sectional – 916 nurses/2 public hospitals	Cross-validate ICS in nursing	Emp. referent	ICS $\alpha = 0.94$ – 0.95 ; factor structure unchanged at unit level; usable for inpatient quality initiatives.
Faro E, 2022, USA [58]	Qualitative – 48 staff/HIV-PrEP clinics	Identify contextual factors in PrEP roll-out	Def. attributes, Emp. referent	<i>Tension-for-change, compatibility, priority</i> cited as most salient IC drivers of PrEP uptake.
Hamm RF, 2023, USA [13]	Cross-sectional – physicians & nurses/inpatient maternity	Reliability & role-specific perceptions of ICS	Emp. Referent, Definition	ICS $\alpha = 0.89$ (phys 0.91, nurses 0.86); perceptual gaps in IC between roles underline need for role-tailored assessments, might perceive concepts like "Focus on EBI" and "Support for EBI" differently.
Jacobs SR, 2014, USA [9]	Cross-sectional – physicians & BH clinicians/oncology & BH centres	Global vs specific measurement of IC	Emp. Referent, Definition, Def. attribute	CFA supported a global 3-factor IC; in dispersed sites IC was individual-level, co-located sites showed group-level aggregation.
Jacobs SR, 2015, USA [78]	Cross-sectional – physicians/CCOP network	Test innovation-implementation framework	Antecedent/conseq.	IC strongly predicted implementation effectiveness; first-line leadership behaviours indirectly enhanced IC.
Klein et al, 1996, NA [3]	Review article	Introduce implementation-effectiveness model	Related concept, Definition	Defined IC (expected, supported, rewarded) & innovation-values fit as twin determinants of effective implementation.
Lin YJ, 2023, USA [53]	Qualitative – VA anticoagulation teams	Resource–IC interplay across phases	Antecedent/conseq., Def. attribute	Champions, time & leadership support raised IC; extra staff alone did not ; time-pressure eroded morale.
Ludwick T, 2021, Ethiopia [15]	Qualitative – family-health teams	To understand the determinants related to the adoption of family health teams in LMICs	Def. attribute, Emp. referent	Compatibility, priority & incentives (rewards) drove team participation; weak IC explained low uptake.
McGuier EA, 2023, USA [81]	Cross-sectional – Child Advocacy Centre teams	To test associations between teamwork → IC → outcomes	Antecedent/conseq.	Task/affective interdependence & learning behaviour had $r > .40$ with IC and screening performance.
Peters N, 2022, Norway [71]	Cross-sectional – 510 clinicians/OP MH	Validate Norwegian ICS	Emp. referent	Six-factor model held (α 0.83–0.95); stronger group- than individual-level ICCs – useful for org feedback.

First author, year, country	Study design, sample and setting	Study Aim	IC focus ^b	Key finding(s)
Powell BJ, 2017, USA [12]	Cross-sectional – 120 BH agencies	Examines if organizational-level factors predict therapist attitudes	Antecedent/conseq., Definition, Def. attribute	Educational-support facet ↑ favourable EBI attitudes; heavy financial-reward focus linked to ↓ knowledge & ↑ divergence
Powell BJ, 2021, NA [68]	Systematic review	To identify and assess the properties of measures of organizational culture, organizational climate, IC, and related subconstructs	Emp. referent	ICS earned highest evidence score (11/36); good reliability, validity and available norms across BH sectors.
Pullman MD, 2018, USA [54]	Qualitative – supervisors & clinicians/MH	This study explores predictors of supervisory EBT intensity	Antecedent/conseq., Def. attribute	Regular skill-focused supervision reinforced the <i>support</i> dimension of IC and boosted EBT fidelity.
Rosen SC, 2023, USA [55]	Observational – VA MH providers	Assess whether IC and implementation leadership reduced therapist burnout	Antecedent/conseq., Def. attribute	Positive IC cut staff burnout odds by ~40 %; no effect for leaders – role-specific supports needed.
Sansbury GM, 2023, Malawi [46]	Qualitative – district NCD clinics	Understand how leadership shapes IC	Antecedent/conseq., Def. attribute	Engaged district leaders forged stronger IC that overcame resource barriers to integrate depression care.
Schneider, 2013, NA [33]	Narrative review	Illustrate the shift and difference in interest to organizational climate from a focus on organizational culture.	Definition, Related concept	Clarified climate (shared meanings) vs culture (deep values); IC framed as strategic sub-climate.
Sklar 2019, USA [8]	Mixed-methods – staff/MDs/PCMH clinics.	Assess IC and attitudes about EBIs in transformation	Def. attribute	6 IC dimensions surfaced; educational support & recognition most cited change levers during PCMH rollout.
Sklar M 2024, USA [14]	Case study – Oregon Community Progs	Understand the constructs of implementation leadership and IC	Model case, Def. attribute	Proactive leadership, incentives & structural embedding of MBC yielded sustained high IC.
Stamatakis CA, 2020, USA [66]	Cross-sectional – 315 LHD staff	Develop a measure of equity-oriented IC	Emp. referent	EOIC $\alpha = 0.82$; scores predicted equity-related practice adoption in local PH departments.
Szota C, 2023, Germany [40]	Cross-sectional – 609 psychotherapists	German translation of ICS	Emp. Referent, Def. attribute	German ICS $\alpha = 0.91$; CFA good fit; supports cross-cultural ICS use in European MH settings
Turner k, 2018, USA [87]	Cross-sectional – 93 pharmacies	Test if contextual factors, will affect implementation effectiveness	Model case	Higher IC doubled odds of program reach; innovation-values fit moderated IC → effectiveness link.
Vis C, 2022, Across Europe [56]	Mixed-methods – 14 orgs concept-map + survey	Advance understanding of organisational IC	Def. attribute, Emp. referent	Top IC drivers: role clarity, feasible targets, dedicated team; IC $r = .34$ with usability satisfaction.
Weiner, 2011, NA [36]	Conceptual review	Clarify the meaning of IC and distinguish it from other constructs	Def. attribute, Definition, Emp. Referent, Related concept	Emphasised IC's <i>innovation-specific & strategic</i> nature – unlike molar climate or culture.
Williams 2024, NA [82]	Cluster RCT – 32 clinics	Tested LOCI → IC → MBC fidelity	Antecedent/conseq.	LOCI produced large IC gains ($d \approx 1.0$); IC mediated improvements in measurement-based care fidelity.
Williams NJ, 2018, USA [10]	3-yr prospective – 29 orgs	Examine how org. culture and EBI IC change relate to clinician turnover	Antecedent/conseq.	+1 SD IC change linked to 35 % lower clinician turnover during large-scale EBI rollout.
Williams NJ, 2018, USA [79]	Prospective – 20 orgs	Test interactions between molar climate and IC	Related concept, Antecedents	IC predicted EBI use only when molar climate positive – synergy between general & strategic climates.
Williams NJ, 2022, USA [74]	Repeated cross-sectional – CBT fidelity	Test whether higher IC predicts improved clinician adherence to an EBI	Antecedent/conseq., Related concept	Each SD ↑ in IC produced 0.28 SD ↑ in observed CBT adherence six months later.

First author, year, country	Study design, sample and setting	Study Aim	IC focus ^b	Key finding(s)
Williams, 2020, USA [6]	5-yr repeated cross-sectional – hospitals	Test if leadership changes over time and associated with IC	Antecedent/conseq., Definition	Leadership growth preceded IC gains which, in turn, boosted clinicians' EBI use across 5 years.
Wong, 2022, Australia [57]	Qualitative – rural health managers	Describe contextual factors influencing Research Capacity Building	Def. attribute, Emp. referent	<i>Tension for change, priority & compatibility</i> emerged as pivotal IC levers in rural services.
Woodard GS 2021, USA [11]	Pre/post – 85 clinicians/ MH	Examine IC and clinician-level determinants as predictors of attitudes following training	Antecedent/conseq., Definition, Emp. referent	High baseline IC amplified positive attitude change only when training + consultation were present.

^a Abbreviations: *BH* Behavioral Health, *CBT* Cognitive Behavioral Therapy, *CCOP* Community Clinical Oncology Program, *CFIR 2.0* Consolidated Framework for Implementation Research (2022), *CHW* Community Health Worker, *EBI* Evidence-Based Intervention, *EBT* Evidence-Based Treatment, *EOIC* Equity-Oriented Implementation Climate, *FHT* Family Health Team, *IC* Implementation Climate, *ICM* Implementation Climate Measure, *ICS* Implementation Climate Scale, *LMIC* Low- and Middle-Income Country, *LOCI* Leadership and Organizational Change for Implementation, *LHD* Local Health Department, *MBC* Measurement-Based Care, *PCMH* Patient-Centered Medical Home, *RCT* Randomized Controlled Trial, *TF-CBT* Trauma-Focused Cognitive Behavioral Therapy, *VA* United States Department of Veterans Affairs

^b IC Focus legend: *Def. attribute* = illuminated one of the six defining attributes (expectations, support, rewards, compatibility, priority, tension for change); *Antecedent/conseq.* = linked IC to upstream drivers or downstream outcome; *Emp. referent* = developed, validated, or compared IC measures; *Model case* = exemplar illustrating full attribute set; *Related concept/Definition/Public-health relevance* = theoretical framing or applied insight

Table 4 The attributes of implementation climate identified in the literature, and their links to key constructs in the Consolidated Framework for Implementation Research (CFIR) 2.0

Implementation climate attribute	Closest CFIR 2.0 construct(s)	Rationale
Expectations that EBIs are used	<i>I. Mission Alignment</i>	This construct captures the degree to which EBI implementation is viewed as congruent with the organisation's overarching purpose.
Organisational support for EBI use (educational support, adequate staffing & time, leadership encouragement)	<i>J. Available Resources</i> (and its sub-constructs Funding · Space · Materials & Equipment) <i>K. Access to Knowledge & Information</i>	Support is operationalised in CFIR as the tangible resources and training/guidance that make day-to-day EBI delivery feasible.
Rewards and recognition for EBI use	<i>H. Incentive Systems</i>	Includes formal or informal incentives (financial, promotional, reputational) that reinforce the desired behaviour.
Compatibility/innovation–values fit	<i>F. Compatibility</i>	Directly mirrors the fit between the innovation and existing workflows, culture and professional values.
Relative priority	<i>G. Relative Priority</i>	Climate studies frequently measure this as a distinct sub-dimension; CFIR keeps it explicit.
Tension for change/impetus for change	<i>E. Tension for Change</i>	When staff feel the status quo is unacceptable, a positive climate is easier to create and sustain.

Implementation climate attribute	Closest CFIR 2.0 construct(s)	Rationale
Selection for openness/HR policies favouring EBI mindset	<i>A.3 Work Infrastructure</i> (under Structural Characteristics)	Hiring and role design that embed EBI expectations correspond to how work is organised within the Inner Setting.

Table 5 Measurement of implementation climate in health and public health research

Type of measure	Approach/ tool	Description	Key studies (Examples)	Constructs assessed
<i>Quantitative</i>	Implementation Climate Scale (ICS)	18-item scale measuring 6 dimensions: EBI focus, educational support, rewards, recognition, selection for EBI, selection for openness.	Ehrhart et al. [4]; Hamm et al. [13]; Peters et al. [71]	Expectations, support, recognition, training, staffing alignment.
<i>Quantitative</i>	Implementation Climate Measure (ICM)	6-item brief scale capturing broad constructs: expectations, support, and rewards.	Aarons et al. [39]; Jacobs et al. [9]	Global implementation climate.

Type of measure	Approach/tool	Description	Key studies (Examples)	Constructs assessed
Quantitative	Equity-Oriented Implementation Climate Tool	Psychometric tool assessing readiness for equity-focused implementation. (Informed by the CFIR + equity initiatives).	Stamatakis et al. [66]	Equity, policy alignment, climate for underserved populations.
Qualitative	CFIR-Guided Interviews	Semi-structured interviews guided by CFIR's Inner Setting constructs (e.g., tension for change, compatibility, priority). Open-ended interviews analyzed thematically for climate dimensions and perceptions.	Faro et al. [58]; Wong [57]; Ludwick et al. [15]; Sansbury et al. [46]; Sklar et al. [14]	Defining attributes of climate; contextual barriers/enablers. Recognition, leadership influence, feedback, accountability.
Qualitative/Mixed	Concept Mapping and Workshops	Participatory methods used to identify key elements of implementation climate from stakeholder perspectives.	Vis et al. [56]	Role clarity, performance feedback, team structures.
Mixed Methods	Qual + Survey Design	Qualitative interview data used to inform or validate quantitative survey results.	Powell et al. [12]; Lin et al. [53].	Training, support, resource barriers, burnout relationships.

Supplementary Information

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Supplementary Material 1.

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Authors' contributions

DE & GF – Conceptualization, Methodological Design, DE – Literature search, Screening, Extraction, DE & GF – Data synthesis, Interpretation of data, Writing (original draft preparation) DE, AT, SL & GF – Contributed to the overall review and editing manuscript as well as final revision/approval. DE, AT, SL & GF – Visualization/Figure creation

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Competing interests

Guillaume Fontaine is an Associate Editor for Implementation Science Communications. The other authors declare that they have no competing interests.

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