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Psychological Safety and Error Reporting in Healthcare: The Role of Individual Characteristics

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Abstract

Errors in healthcare persist as a major patient safety concern and impose considerable financial strain, contributing to mortality, extended hospitalizations, and psychological harm to both patients' families and the individuals involved in the error. While fostering a culture that encourages speaking up and reporting errors can help minimize their occurrence, the process remains highly complex and influenced by multiple interacting factors. This systematic review aims to identify individual-level attributes that either encourage or discourage speaking-up behaviors in the context of adverse events. Additionally, it examines the relationship between organizational strategies designed to enhance error reporting and individual characteristics, particularly perceptions of psychological safety. A systematic review of peer-reviewed healthcare literature focusing on individual attributes associated with error-reporting behaviors was undertaken. The search process identified 1233 studies published between 2015 and 2021. Among these, 81 full-text articles were screened for eligibility, and data were ultimately extracted from 28 studies that met quality standards, as assessed using the Joanna Briggs Institute Critical Appraisal Tools[©]. The analysis revealed that key individual-level factors influencing the decision to report or speak up about errors include self-assurance and favorable perceptions of oneself, the organization, and its leadership. Elements such as education, professional experience, and knowledge were identified as underlying components that strengthen confidence. In contrast, the most prominent barriers were: 1) self-protective tendencies driven by fear, and 2) unfavorable perceptions of oneself, the organization, and leadership. The findings suggest that perceptions of psychological safety are shaped not only by the environment but also by deeply embedded personal beliefs and values. This underscores the importance of addressing cultural and diversity-related factors in healthcare error reporting and highlights the need for tailored interventions that alleviate fear and encourage reporting behaviors.

Keywords: Speaking up, Error reporting, Psychological safety, Healthcare error, Individual characteristics, Systematic review

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Introduction

Healthcare-related errors exert wide-ranging negative consequences on patients, families, healthcare professionals, organizations, and broader communities [1]. According to the World Health Organization [2], approximately 2.6 million deaths occur annually in low- and middle-income countries. At the same time, in high-income settings, one in ten patients is harmed by healthcare errors, with half of these incidents considered preventable. One effective approach to reducing such errors is either to report them after they occur or to speak up in real time to avert them [3]. However, existing evidence indicates that concerns about potential repercussions often outweigh individuals' willingness to report them [4].



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In recognition of the scale of this issue, the Joint Commission [5] released a sentinel event alert and called for the development of “safety cultures” within healthcare organizations. These cultures emphasize establishing structured error-reporting systems alongside environments that support psychological safety. Psychological safety refers to an individual’s belief that expressing concerns or speaking up will not result in negative consequences and is essential for enabling open dialogue, innovation, and the discussion of sensitive issues [6].

Empirical studies demonstrate that individuals are more inclined to speak up when they perceive their environment as psychologically safe [7]. Nonetheless, due to inherent human factors, such conditions cannot be guaranteed at all times, and errors remain unavoidable [6]. Therefore, healthcare leaders need to design context-specific interventions that help individuals overcome fear and facilitate reporting behaviors.

Despite its importance, the literature remains limited regarding how individual characteristics influence speaking-up behaviors within the context of organizational culture and intervention strategies. This systematic review addresses this gap by examining the individual-level factors that shape decision-making when confronted with the choice to report an error. The broader aim is to assist healthcare leaders in aligning organizational policies with individual beliefs to strengthen error reporting practices. To guide this inquiry, the review seeks to answer the following questions:

1. Which individual characteristics facilitate psychological safety and error reporting in healthcare settings?
2. Which individual characteristics hinder psychological safety and the reporting of healthcare errors?

In this review, individual characteristics refer to the integrated set of a person’s knowledge base, skill set, behaviors, and attitudes that collectively form their personality and shape how they approach problem-solving, make decisions, and interpret situations, ultimately influencing their actions. Organizational factors, in contrast, are defined as the effects of institutional culture, policies, procedures, and established practices that guide actions and processes during events.

According to the Joint Commission [5], a safety culture is composed of three key elements: 1) Just culture: an environment where individuals are supported in reporting safety concerns while still being held responsible for reckless conduct; 2) Reporting culture: a setting in which errors and near misses are consistently reported; 3) Learning culture: an organizational mindset focused on learning from errors and implementing necessary improvements.

Materials and Methods

This review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) 2020 guidelines [8]. Systematic reviews are valuable for identifying deficiencies in existing research and for informing the development of new conceptual understandings [8]. A systematic review design was chosen because the topic of error reporting has already been widely studied in healthcare. As a result, conducting a scoping review would have produced an excessively broad dataset and required substantial effort to refine, given the targeted nature of the research questions.

Search strategies

The review focuses on studies published between January 2015 and May 2021. An initial search retrieved more than 15,000 records, prompting the restriction of inclusion criteria to studies published from 2015 onward. Applying this time limitation reduced the volume of results to a manageable level while ensuring that the analysis incorporated the most recent evidence, an important consideration given the evolving nature of the topic.

An expert librarian contributed to the development and validation of the search strategy. The databases used included ERIC, PubMed, CINAHL, CINAHL Complete, and Medline. In addition, reference lists of the included articles were screened to identify additional relevant studies (ie, ancestry search). Broad search terms were intentionally used due to the lack of a standardized definition of medical error [9] and the wide range of synonymous terms describing both medical errors and speaking-up behaviors. Consequently, commonly used alternative terms in the literature, such as “healthcare error” and “voice behaviors,” were incorporated into the search.

The final search was performed on May 21, 2021, producing 3871 records, along with 25 additional studies identified through the ancestry search. The principal investigator then conducted an initial title screening, excluded irrelevant records, and uploaded the remaining 1269 articles into Covidence®, an online systematic review management platform, for further screening [10].

Inclusion and exclusion criteria

After eliminating 36 duplicate entries, 1233 studies remained and were evaluated at the title and abstract level using predefined inclusion and exclusion criteria agreed upon by the reviewers.

To be included, studies had to meet the following requirements:

1. The sample included at least one healthcare practitioner or pre-licensure trainee (eg, medical students, nursing students),
2. the title or abstract contained references to psychological safety, speaking up, error reporting, or related concepts (ie,

medication error, adverse event, incident report), as well as just culture or equivalent terminology (eg, blame-free, non-punitive, fair blame culture),

3. publication occurred in a peer-reviewed journal within the period 2015–2021, and

4. The study met established quality standards based on the Joanna Institute critical appraisal tools [11].

Studies were excluded under the following conditions:

1. failure to satisfy the inclusion criteria,
2. exclusive focus on the development or validation of measurement tools,
3. primary emphasis on patients or patient outcomes rather than healthcare staff,
4. focus on organizational-level influences instead of individual or clinician-specific characteristics, or
5. lack of relevance to psychological safety, healthcare error reporting, or speaking-up behavior.

Non-empirical sources, including opinion-based publications and continuing education materials, were also eligible, provided they satisfied all other inclusion criteria. No limitations were imposed regarding language or country of origin.

Screening process

At the initial stage, two reviewers independently assessed 10 titles and abstracts against the eligibility criteria, then met to reconcile any differences. Once consensus was achieved and interrater reliability established, the reviewers proceeded with independent abstract screening.

For the full-text phase, five methodologically diverse articles were jointly reviewed to confirm consistency in interpretation further and resolve any disagreements. Following this calibration step, full-text articles were examined independently, with reviewers holding weekly discussions to address and resolve any conflicts.

Application of the inclusion and exclusion criteria resulted in the exclusion of 1150 studies, and two records could not be obtained. A total of 81 articles advanced to full-text eligibility assessment. Additionally, reference lists of the included studies were reviewed, yielding 25 additional articles through ancestry searching for full-text evaluation. Among these 25, one article was published in Spanish, whereas the remaining studies were in English. Ultimately, 78 articles were excluded based on the established criteria, leaving 28 studies for inclusion. The selection process is depicted in the PRISMA flow diagram presented in **Figure 1**.

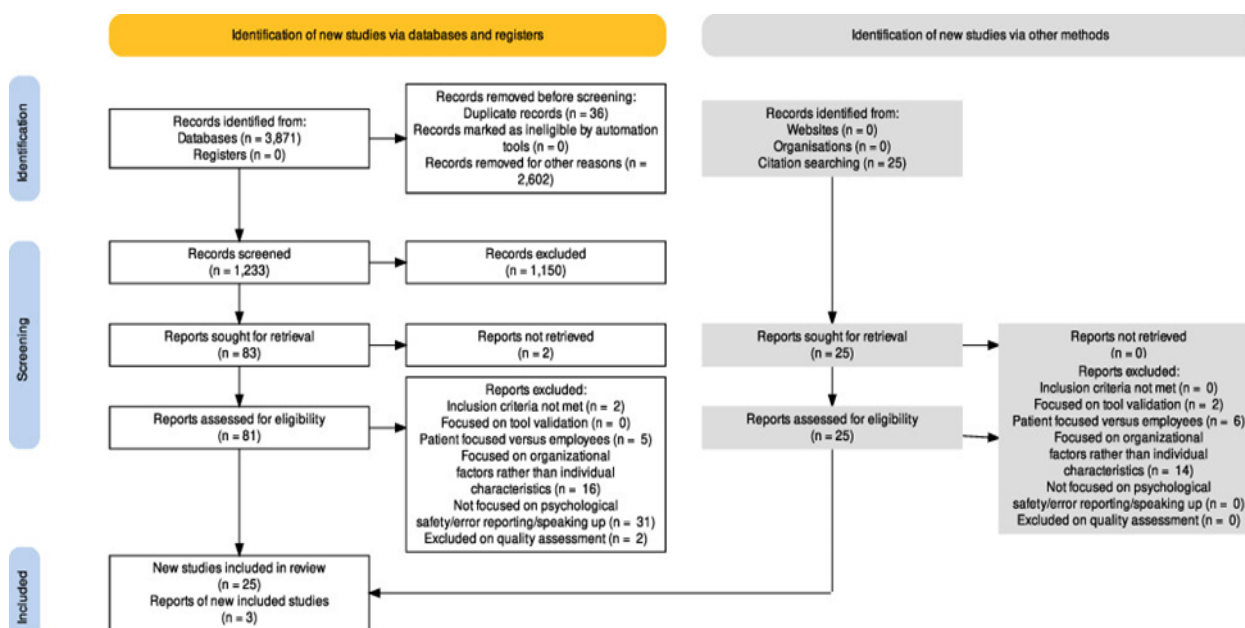


Figure 1. Prisma flow diagram. Notes: PRISMA flow diagram adapted from Page *et al.* [8].

Data extraction process

To systematically capture information aligned with the study objectives, two researchers jointly designed a data extraction matrix. The finalized version of this matrix is presented in **Table 1**. One reviewer conducted a complete review of all included articles and performed the initial data extraction. Two additional researchers were subsequently involved, each independently reviewing and extracting data from half of the studies, ensuring that two reviewers examined every article.

For the single article published in Spanish, a researcher fluent in Spanish was assigned to extract and translate the relevant data into English to ensure consistency in analysis. All remaining studies were available in English. A fourth reviewer contributed by engaging in team discussions to refine thematic interpretations and address any discrepancies. Full agreement was achieved across all 28 included studies.

Table 1. Data extraction table.

Section	Items
General information	Reference format: APA
	Country of study: United States, United Kingdom (UK), Canada, Australia, Other
Characteristics of included articles	Study aim/objective
	Research type: Quantitative/ Qualitative/Mixed-methods/Non-research
	Theoretical or conceptual framework/model (if reported)
Methods	Research design
	Participant description
	Total sample size
	Participation type: voluntary/involuntary
	Professional groups involved
	Number of departments included
	Number of hospitals/clinics/schools included
	Philosophical approach or terminology used (e.g., blame-free culture, accountability, non-punitive systems, etc.)
Findings	Study limitations
	Main findings reported in the article
	Outcome measures/indicators of effectiveness or success
	Individual-level barriers to error reporting
	Individual-level facilitators of error reporting
	Organizational-level facilitators of error reporting
	Organizational-level barriers to error reporting
	Summary of findings aligned with the study aim (in your own words)
Future research	Recommendations or suggestions for future studies

In addition, each study was analyzed to identify reported outcomes, using Kirkpatrick's [12] evaluation framework to assess the current level of evidence in the literature. The Kirkpatrick and Kirkpatrick [12] model is widely recognized as a global standard for program evaluation. Accordingly, studies were classified into the following levels: reaction, learning/satisfaction, behavior, and results. Furthermore, return on investment (ROI) was assessed using the Phillips *et al.* [13] model, which evaluates the effectiveness and impact of healthcare programs.

Evaluating evidence levels provides insight into both the effectiveness and economic value of interventions. It also reveals prevailing research trends and helps identify areas that require further investigation, particularly in speaking up behaviors and error-reporting practices.

Results and Discussion

The review yielded 28 primary studies that examined individual characteristics associated with either enhancing psychological safety or contributing to barriers in error reporting.

The majority of studies reported findings at Level 1 (reaction) and Level 3 (behavior) within the Kirkpatrick and Kirkpatrick [12] framework. Only two studies were categorized at Level 4 (results) [12]. No studies meeting the inclusion criteria provided evidence at Level 2 (learning), nor did any report return on investment outcomes.

The included studies represented a broad geographic distribution, with ten conducted in the United States (US) and 18 originating from other countries. Methodological designs varied, comprising 12 qualitative studies, 10 quantitative studies, 4 mixed-methods studies, and 2 categorized as non-research (i.e., editorials or opinion papers).

The analysis then focused on how individual traits, values, and belief systems shape decision-making processes regarding speaking up or reporting errors. **Table 2** presents a comprehensive summary of the key individual characteristics identified in the literature as facilitating error reporting.

Table 2. Themes identified for individual characteristics that promote speaking up/error reporting.

Promoting factors	Description/Elements
Anonymity of reporters	• Confidence in anonymous reporting systems that ensure confidentiality of identity
Assertiveness	• Self-assurance and assertiveness enhance willingness to speak up

Confidence	• Clinical expertise and experience strengthen self-confidence • Trust in available resources and established protocols • Confidence in one's own clinical knowledge
Responsibility	• Commitment to personal and professional ethical standards • Moral obligation toward safeguarding vulnerable patients • Strong sense of individual accountability
Knowledge	• Clinical expertise • Awareness of personal limitations • Understanding how to voice concerns • General knowledge of incident reporting systems • Knowing what and when to report or raise concerns (e.g., errors, near misses) • Familiarity with reporting procedures and systems
Education	• Higher levels of academic education • Increased engagement in professional development activities
Emotional Intelligence	• Ability to recognize and interpret own and others' emotions to guide behavior and decision-making
Experience	Greater experience may contribute to: • Effective communication within multidisciplinary/interprofessional teams • Stronger clinical judgment • Improved reasoning abilities • Enhanced management of challenging situations
Interpersonal Skills	• Advocacy: willingness and ability to speak up for patient safety • Assertiveness and confidence as key components of interpersonal effectiveness • Communication abilities • Professional diplomacy in interactions
Perceptions	• Belief in effectiveness of speaking up • Acceptance that making mistakes is normal • Job satisfaction • Perceived safety in the workplace • Positive view of safety culture • Sense of professional duty
Peer support	• Exchange of information among colleagues • Feeling of belonging within the team • Presence of role models

The results are synthesized in response to the research questions, with emphasis placed on the principal overarching themes:

Individual characteristics that promote psychological safety and error reporting in healthcare

The dominant themes associated with individual factors that encourage reporting include favorable perceptions of oneself, the organization, and leadership [14-17], as well as confidence [3, 18-20]. Subthemes closely tied to confidence include experience [15, 18, 19, 21] and knowledge [14, 18, 19, 22, 23].

Positive perceptions of self, the organization, and leadership

The cognitive frameworks individuals use to interpret their environment—often rooted in deeply held beliefs and values—play a key role in shaping reporting behavior [15]. For instance, when individuals perceive their environment as personally safe and feel able to express ideas without fear of criticism or harm, their likelihood of reporting increases [14, 24]. Similarly, when role models are viewed as approachable, colleagues are open to inquiry, and workplace relationships are respectful, individuals tend to experience greater psychological safety and are therefore more inclined to report [18].

In addition, psychological safety is strengthened when individuals hold an internal sense of ethical and moral duty to advocate for vulnerable patients, which, in turn, supports speaking-up behaviors [15, 18]. Likewise, those who believe they have a professional obligation and perceive their work as meaningful contributions are also more likely to engage in reporting [15].

Confidence

Confidence emerged as a central determinant of speaking-up behavior [3, 18-20, 23]. Aydon *et al.* [18] argue that confidence enhances assertiveness, thereby strengthening the tendency to speak up. Confidence is also closely linked to both knowledge acquisition and practical experience [19]. Shepherd *et al.* [19] observed that physicians with greater experience perceive organizational culture as having less negative influence on their ability to learn from mistakes.

Belief in the reliability of organizational systems, protocols, and resources [25] contributes to increased knowledge, which, in combination with experience, enhances self-confidence [18]. Reliable protocols are particularly important for individuals with limited knowledge [18, 25], such as recent graduates. Moreover, confidence influences other essential components of error reporting and speaking up. For example, effective interpersonal communication skills depend heavily on confidence, yet this skill is often underdeveloped among newly qualified healthcare professionals [20]. As a result, communication training can strengthen confidence [14]. Similarly, training in conflict management increases confidence, which, in turn, improves assertiveness and the ability to speak up [18].

Knowledge, education, and experience relate to confidence

An individual's level of knowledge is a strong indicator of psychological safety in relation to error reporting [14, 18, 22, 23]. Insufficient knowledge acts as a barrier, whereas greater knowledge supports both psychological safety and reporting behaviors. Uncertainty regarding definitions, lack of awareness of reporting systems, and unfamiliarity with reporting procedures constitute significant obstacles [24] that require organizational intervention.

However, the relationship between knowledge, education, and reporting behavior is not consistent across studies. For example, Vrbnjak *et al.* [26] reported that in some cases, nurses with higher educational attainment reported more frequently. In contrast, Chegini *et al.* [27] found that associate degree nurses were sometimes more likely to report than those with higher educational qualifications.

Furthermore, Vrbnjak *et al.* [26] identified evidence suggesting that nurses with advanced education, continuing professional development, or higher-level training may actually underreport in some contexts. Supporting this complexity, Chegini *et al.* [27] cited findings indicating that managers and staff with higher levels of education are more likely to report. One possible explanation is that individuals in senior positions with advanced qualifications may experience greater security [21].

Another inconsistency was reported by Lee *et al.* [28], who found that educational level was not a significant predictor of error reporting and that years of experience did not meaningfully influence reporting behavior. However, other studies indicated that greater experience is associated with increased confidence and improved ability to identify issues and manage challenging situations. At the same time, Vrbnjak *et al.* [26] noted conflicting findings: some studies suggested that more experienced nurses feared consequences more, while others indicated that increased experience reduced fear.

Edmondson *et al.* [21] further demonstrated that education and experience influence reporting differently across professional contexts. In academic environments such as tenured faculty or university administration, individuals with higher rank and experience are more likely to report compared to non-tenured or early-career staff. In acute care settings, however, reporting behavior is more strongly influenced by hierarchical position and organizational status [29]. Individuals occupying higher roles tend to perceive greater psychological safety [18, 21].

Overall, the evidence suggests that job role, responsibilities, and position within the organizational hierarchy significantly shape both psychological safety and speaking-up behaviors.

Individual characteristics that serve as barriers to error reporting

The main thematic categories of individual-level barriers (**Table 3**) are:

Table 3. Themes identified for individual characteristics that serve as barriers to speaking up/error reporting.

Barriers	Description/Elements
Self-preservation	• Fear of: ◦ Being blamed ◦ Leaving a negative impression ◦ Being labeled by colleagues as a “tattletale” ◦ Legal repercussions ◦ Loss of credibility and damage to reputation ◦ Public exposure of mistakes ◦ Adverse outcomes and consequences ◦ Organizational reactions affecting individuals, teams, and workflows ◦ Formal reprimands or punishment ◦ Retaliation ◦ Stigmatization ◦ Uncertainty about consequences • Desire to preserve positive relationships with supervisors • Reluctance to challenge peers due to perceived lack of responsibility
Perceptions	• Belief that errors are unavoidable • Feeling unsupported (e.g., learners unable to act independently without supervisor presence) • Perception of ineffective leadership • Lack of awareness (e.g., belief that reporting is unnecessary when no harm occurs) • Low confidence in reporting ability • View that reporting systems are excessively bureaucratic • Belief that others will take responsibility • Perception that speaking up does not lead to meaningful change • Perception of colleagues as unapproachable
Powerlessness	• Lower perceived power or status • Hierarchical and power imbalances • Student or trainee status
Shame	• Embarrassment or shame associated with making mistakes
Gender	• Female identity is possibly constrained in paternalistic cultural settings
Weakness	• Viewing admission of error as a sign of personal weakness
Differing personalities	• Personality clashes or incompatibility
Burnout and tiredness	• Emotional exhaustion • Fatigue related to heavy workload
Hostile work environment	• Workplace bullying • Blame-oriented culture including naming, shaming, and scapegoating
Rush factor	• Time pressure leading to shortcuts or workarounds
Preference to keep incidents in-house	• Prioritization of loyalty toward colleagues, especially physicians
Characteristics of the incident	• Events considered non-harmful • Low or no perceived risk of harm • Viewing incident reporting as an indicator of incompetence

- Self-protective behavior linked to fear was identified in 15 studies.
- Negative perceptions of oneself, the organization, and leadership were addressed in eight of the included studies.

Across the literature, fear-related factors and perceptual influences appear as the most frequently reported impediments to speaking up. This highlights the importance of establishing psychologically safe environments to reduce these barriers and encourage error reporting. Strengthening team-based relationships and fostering a supportive climate can enhance psychological safety within the group. For instance, taking time to learn colleagues' names and openly discussing learning objectives, achievements, and setbacks helps build cohesion and develop a shared understanding within teams [14]. Likewise, normalizing discussion of errors as part of routine learning reinforces the idea that mistakes are a natural component of professional development [14].

Self-preservation associated with fear

Fear-driven self-protection emerged as the most consistently reported barrier in the literature. More specifically, fear of being blamed [20, 22, 27, 30, 31], concern about damaging one's image or reputation [17, 32], and anxiety regarding negative outcomes or punitive responses [1, 3, 14, 30, 31, 33, 34] were the most commonly cited issues. Prior adverse experiences related to committing or reporting errors—such as being stigmatized as a “snitch” or “tattletale” [15, 20]—as well as formal disciplinary actions [1, 3, 14, 30, 33, 34], also reinforced self-protective behavior and discouraged reporting [26].

Negative perceptions of self, the organization, and leadership

Variations in personality traits may create interpersonal tension and reduce individuals' confidence to speak up [18]. Such differences can also contribute to perceptions of colleagues as unapproachable or foster impressions of a hostile work environment, particularly in contexts where naming, blaming, or shaming behaviors are present [20]. Perceptions of poor leadership effectiveness further undermine psychological safety and the willingness to report errors [26], as well as emotional exhaustion [21] and high workload demands [18], all of which contribute to disengagement and reduced reporting behavior. Similarly, when individuals hold the belief that errors are unavoidable [15] or that speaking up will not lead to meaningful change or improvement, their likelihood of reporting decreases [14, 33, 35]. Furthermore, if speaking up is met with criticism or negative consequences, individuals are unlikely to repeat such behavior. Prior experiences strongly influence future actions [26] and may outweigh formal expectations of accountability or responsibility. In this way, previous encounters shape both perception and intention [26]. Negative outcomes following reporting can significantly damage future reporting behavior [1], suggesting that adverse experiences discourage subsequent disclosures.

Given this, effective conflict management training becomes essential when individuals raise concerns perceived as inappropriate [36]. When someone reports an issue or error, responses must be managed carefully to avoid reinforcing negative perceptions of speaking up. It is equally important to educate individuals on how to respond when their message is ignored or results in unintended consequences. Leadership also plays a critical role in equipping staff with strategies to manage negative reactions or backlash following reporting.

Finally, some studies advocate for the use of anonymous reporting systems [22, 26, 34]. However, other findings suggest that anonymity may undermine trust and contribute to negative perceptions of both colleagues and the organization [37]. While anonymous mechanisms such as 360-degree feedback and incident reporting systems exist, anonymity can sometimes encourage inappropriate behavior, as individuals involved in errors may make incorrect assumptions about the source of feedback. Rather than strengthening trust, such assumptions may increase mistrust. Additionally, anonymity may unintentionally convey the message that honest, direct, and compassionate feedback is undesirable or harmful, thereby further distorting communication norms within healthcare environments [37].

The findings of this study indicate that confidence plays a central role in shaping error-reporting behavior. Although healthcare leadership may supply appropriate resources and frameworks, it remains crucial to understand the underlying factors that shape individual decision-making and to engage individuals at their current level for such environments to function effectively. Educational programs and training alone are insufficient to enhance speaking-up behaviors or to establish psychologically safe environments [4, 21]. Nevertheless, certain strategies for fostering supportive climates and strengthening psychological safety begin with promoting familiarity within teams. For instance, developing interpersonal connections through learning colleagues' names [38, 39] and sharing educational objectives can help create team cohesion and a collective understanding [39]. Likewise, openly discussing mistakes can help normalize error, thereby encouraging reporting behaviors [39].

This review further demonstrates that the effectiveness of healthcare error reporting systems depends not only on organizational structures, policies, and procedures, but also on whether individuals perceive their environment as psychologically safe. In addition, individuals who exhibit greater confidence, trust in leadership, and a strong sense of professional duty and patient responsibility are more inclined to speak up than those lacking these perceptions. As a result, healthcare leaders must actively foster positive perceptions among staff. Training leaders to respond appropriately to reports and speaking-up events is also vital for reinforcing trust and encouraging future reporting behavior.

Moreover, healthcare organizations must critically assess the effectiveness and value of existing speaking-up initiatives and error reporting systems. The absence of studies at Kirkpatrick and Kirkpatrick's [12] Level 4, which evaluates overall outcomes and benefits of interventions, highlights a significant gap in assessing the impact of current programs on patient safety. Furthermore, none of the included studies examined return on investment. Evaluating the balance between the costs and benefits of error-reporting systems for patient safety remains an essential area of inquiry to determine whether current approaches are effective.

The results of this systematic review highlight a notable gap in the literature regarding the impact of existing systems on patient safety outcomes, while also introducing a more individual-centered perspective on error reporting and speaking-up behaviors. Much of the existing research and education in healthcare error management tends to emphasize organizational policies and expectations. In contrast, this study suggests that deeply rooted personal values and beliefs significantly shape

perceptions and decision-making. Enhancing error reporting and speaking-up behaviors may therefore require identifying these individual perceptions and addressing them in a more tailored and supportive manner.

Limitations

This systematic review has several limitations. First, 20 of the 29 included studies relied on voluntary participation. This introduces potential voluntary response bias, as such samples reflect only a portion of the target population and may not accurately represent the broader group of interest [40].

Another limitation relates to the search strategy, which identified only one study published in a non-English language. This is likely attributable to search constraints and the predefined eligibility criteria. Specifically, the inclusion and exclusion criteria were designed to omit studies focusing on organizational culture, as the authors were concurrently examining organizational determinants of error reporting in a separate comparative review. Consequently, it should not be inferred that relevant research does not exist outside the English-language literature.

Future directions

This study highlights multiple gaps in the existing literature on psychological safety that warrant further investigation:

- Currently, there is insufficient research exploring how cultural factors [24] and gender roles [41] shape employees' perceptions of psychological safety.
- Although supportive work environments and reduced stress levels are associated with enhanced learning, they do not automatically translate into improved psychological safety. Additional studies are needed to better understand burnout and its influence on psychologically safe workplace conditions [39].
- There is a need for intervention-based research that accounts for individual traits and perception-driven decision-making processes, particularly in situations where speaking up involves elevated risk and requires careful intervention strategies.
- More empirical work is needed to clarify the relationships among leadership effectiveness, psychological safety, and speaking up behavior.

While effective leadership has been identified as an essential component of psychological safety [21], it remains a broadly defined concept shaped primarily by employee perceptions. Further research is needed to operationalize “effective leadership” and to examine its relationship with psychological safety [26] and speaking-up behaviors.

Conclusion

The challenges healthcare leadership faces regarding medical errors and reporting are widely recognized as complex, multifactorial, and deeply interconnected. However, healthcare systems consist of individuals whose personal characteristics, beliefs, and perceptions significantly shape decision-making processes and may discourage error reporting, even in supportive organizational environments. In other words, despite leadership efforts to promote reporting behavior, individuals may still choose not to report due to underlying personal perceptions and contextual interpretations. While individual characteristics represent only one dimension influencing error reporting, these personal values and belief systems within diverse populations should be considered when designing policies, staff development initiatives, and post-error follow-up procedures.

This systematic review identifies key individual characteristics that facilitate psychological safety and promote error reporting, as well as those that function as barriers to these behaviors. Healthcare leaders may use these insights to design interventions that strengthen enabling factors and reduce inhibiting ones. Future research addressing the gaps identified in this review has the potential to expand further and refine these findings.

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