BMC Health Services Research

RESEARCH

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Safety huddle in healthcare settings: a concept analysis

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Abstract

Background Safety huddles, brief interdisciplinary meetings aimed at proactive risk mitigation, are increasingly adopted in healthcare to enhance communication and patient safety. Despite their recognized benefits, inconsistent definitions, variable implementation, and conceptual ambiguity persist, hindering standardization and scalability. This study clarifies the concept of "safety huddle" through a rigorous concept analysis.

Methods Rodgers and Knafl's evolutionary concept analysis methodology was applied. A systematic search of CINAHL, Medline, and PubMed (2013–January 2025) identified 32 relevant studies. Data were analyzed to delineate core attributes, antecedents, consequences, and contextual variations of safety huddles.

Results Five core attributes emerged: (1) structured communication (e.g., SBAR, checklists), (2) interdisciplinary collaboration, (3) time-bound, goal-oriented design, (4) proactive risk prediction, and (5) contextual adaptability. Key antecedents included leadership support, psychological safety, and dedicated resources. Consequences encompassed enhanced teamwork, situational awareness, and safety culture. Contextual variations revealed adaptability across settings (e.g., maternity care, ICUs), though and inconsistent participation posed challenges.

Conclusions Safety huddles are a dynamic, multifaceted intervention with significant potential to reduce medical errors and foster collaborative safety practices. However, conceptual inconsistencies and methodological gaps limit generalizability. Future efforts should prioritize standardized yet flexible frameworks, leadership training, and policy reforms to optimize huddle efficacy. This analysis provides a foundational model for advancing research, education, and practice in patient safety.

Keywords Safety huddle, Concept analysis, Patient safety, Interdisciplinary communication, Healthcare quality

Background

"Huddle moments," as they are known, are a type of proactive briefing that healthcare providers conduct to work together, share information, and raise awareness of safety issues in healthcare settings [1]. These quick, targeted stand-up meetings have the potential to enhance medical care by promoting a common understanding of current clinical situations and facilitating efficient and cooperative information exchange [2]. Similar to a football huddle where players exchange plans and strategies, safety huddles in healthcare settings involve a circle-like arrangement to shield participants from distractions,

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thereby ensuring focused and effective communication [1]. Miscommunication between healthcare professionals is responsible for approximately 80% of significant medical errors, according to the Joint Commission Center for Transforming Healthcare [1]. Additionally, the challenge of "many hands," where accountability is diffused across teams, further complicates efforts to address communication issues [3]. Wahl, Stenmarker, and Ros explored the idea of safety huddles in healthcare settings and highlighted their role in fostering a culture of safety through proactive risk management [4]. Safety huddles in healthcare settings have been shown to facilitate interdisciplinary teams' successful collaboration, enhanced communication, and the development of a shared understanding of safety issues through structured talks and information exchange [4]. The adoption of structured communication techniques and early warning system scores within huddles has been integral to their effectiveness [5]. These huddles can lead to more staff productivity, better information sharing, higher accountability, feelings of empowerment, and a collaborative culture, thereby enhancing safety in healthcare settings [5].

Safety huddles are widely recognized as an essential tool in healthcare settings to enhance patient safety, foster interdisciplinary collaboration, and promote situational awareness [6–8]. However, the concept itself remains inconsistently defined, with significant variation in its implementation, attributes, and outcomes across healthcare systems and clinical contexts [9, 10]. The lack of conceptual clarity complicates the evaluation, standardization, and scalability of safety huddles, as studies often focus on specific operational outcomes or localized practices rather than addressing broader, universal attributes and their evolution [8, 10, 11]. Furthermore, key components such as antecedents (e.g., leadership support, cultural readiness) and consequences (e.g., improved teamwork, reduced errors) have been examined in fragmented ways, without a cohesive framework for understanding how these elements interact dynamically or evolve over time [6, 7, 9]. Existing research largely omits formal concept analyses, with no study to date utilizing Rodgers and Knafl's evolutionary concept analysis approach to systematically delineate the attributes, antecedents, and consequences of safety huddles in healthcare. This gap hinders attempts to generalize findings across different settings and to conceptualize safety huddles as a flexible yet consistent intervention capable of adapting to rapidly changing healthcare environments.

This study aims to address the conceptual ambiguities surrounding safety huddles by leveraging Rodgers and Knafl's evolutionary concept analysis methodology – a robust approach for systematically analyzing and clarifying dynamic, evolving concepts (Rodgers and Knafl, 2000). By identifying the core attributes, antecedents, and consequences of safety huddles, while accounting for contextual variability and interdisciplinary influences, this study will provide a comprehensive framework to understand safety huddles as both an intervention and a concept. Importantly, this work will explore how safety huddles have evolved over time and across healthcare settings, contributing to broader efforts toward their standardization and scalability. The findings will have practical implications for healthcare administrators, clinicians, and policymakers by offering practical insights into optimizing safety huddle design and implementation. Furthermore, the study fills a critical methodological gap in the existing literature, offering a template for concept analysis in healthcare interventions to improve definitional clarity and support evidence-based practice.

Table 1 Rodgers and Knafl's concept analysis method

Component	Description
Concept Identification	Identify the concept of interest to clarify its meaning and significance.
Surrogate Terms	Identify alternative terms or expressions that convey similar meanings to the concept.
Related Concepts	Identify concepts that are similar to or associated with the concept, helping to distinguish it from related phenomena.
Attributes	Identify the defining characteristics or attributes of the concept, which help to distinguish it from other concepts.
Antecedents	Identify events or conditions that must occur before the concept can be observed, providing context for its occurrence.
Consequences	Identify the outcomes or effects that result from the occurrence of the concept, indicating its impact or significance.
Contextual variations	The variations in the attributes of the concept within the context of disciplinary, social, cultural, or historical situations.

Methods

Rodgers and Knafl's evolutionary method of concept analysis was applied in this study [12]. According to Rodgers, concept analysis is crucial because concepts are dynamic, ambiguous, and context-dependent. Concepts must continuously evolve to reflect changing phenomena, needs, and goals, ensuring clearer and more practical meanings over time. Using Rodgers and Knafl's method (see Table 1), we examined research articles to identify the attributes, antecedents, consequences, and contextual variations of safety huddles.

The analysis focused on three specific research questions: 1. What are the core attributes of safety huddles in healthcare settings as identified in the literature, and how do these attributes vary across different healthcare settings and organizational contexts? 2. What are the antecedents that initiate the implementation of safety

huddles in healthcare settings in healthcare organizations, and how do these antecedents influence the structure and effectiveness of huddle practices? 3. What are the consequences of integrating safety huddles in healthcare settings into clinical workflows, both intended (such as improved communication and patient outcomes) and unintended (such as workflow disruptions or resistance), as reported in empirical studies?

For the study " Safety Huddle in healthcare settings: A Concept Analysis," the selection of databases CINAHL, Medline, and PubMed was critical due to their specialized focus on healthcare literature. CINAHL offers comprehensive coverage of nursing and allied health professions, including studies, systematic reviews, and qualitative research on safety in healthcare settings initiatives and interdisciplinary teamwork. Medline broadens the scope to include biomedical literature, clinical medicine, and public health, facilitating exploration of huddle effectiveness across diverse medical specialties. PubMed complements these resources with extensive coverage of biomedical and life sciences research, relevant to healthcare quality improvement and organizational behavior in safety strategies in healthcare settings. These databases provide access to peer-reviewed articles and empirical studies that analyze the conceptual frameworks and practical applications of safety huddles in healthcare settings.

To optimize search efficiency, Boolean operators were used with key terms ""safety huddle," "healthcare setting," "hospitals," "unit," "department," "ward," and "clinic," ensuring comprehensive coverage across selected databases. The search strategy involved filtering for English-language studies published between 2013 and January 2025, removing duplicates, and excluding records not directly related to safety huddle in healthcare settings after abstract review (Fig. 1).

Initially, 1025 records were identified across databases. After removing duplicates and non-English records, 672 records were excluded. Subsequently, 258 records were excluded based on abstract review, followed by 63 additional exclusions for lacking clear definitions or attributes related to the concept. This process resulted in 32 selected records that directly contribute to the analysis of safety huddle in healthcare settings.

These databases enable researchers to synthesize insights into how safety huddles are conceptualized, implemented, and evaluated in various healthcare settings, enhancing their understanding of their impact on healthcare quality and patient outcomes.

Results

The studies identified varied considerably in terms of their focus, methodology, and outcomes. While none explicitly employed Rodgers and Knafl's concept analysis methodology, many included elements reflective of this approach, such as the exploration of antecedents, attributes, and consequences of safety huddles. The majority of the studies relied on qualitative or mixed-method approaches, focusing on safety huddles' implementation, functionality, evaluation, and impact. These methodologies included semi-structured interviews, thematic analysis, observational studies, and scoping or systematic reviews. Few studies employed rigorous experimental designs, with most relying on pre–post designs or qualitative interpretations.

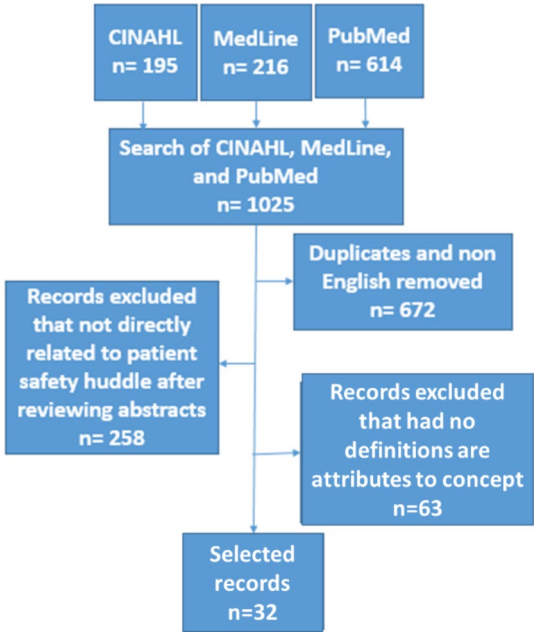

Fig. 1 PRISMA flow diagram of citations identified and evaluated. *Note.* PRISMA = preferred reporting items for systematic reviews and meta-analyses

Core attributes of safety huddles in healthcare settings

The reviewed literature consistently described the defining characteristics of safety huddles, focusing on structural components, functionality, and objectives within healthcare systems. These attributes, though not universally standardized, reveal recurring themes across studies.

Structured communication

Safety huddles are defined by their reliance on structured communication methods. Huddles commonly utilize predetermined agendas or standardized communication tools (e.g., SBAR—Situation, Background, Assessment, Recommendation) to ensure consistent and focused discussions. Tools like the Huddle Observation Tool (HOT) further formalize the structure, enabling systematic observation and evaluation of huddle dynamics [13]. The emphasis on structured communication ensures the facilitation of key safety objectives, including the early

identification of risks and collaborative problem-solving [8, 9].

Interdisciplinary nature

Safety huddles encourage participation across disciplines, fostering collaboration between healthcare professionals regardless of hierarchy. The participation of staff at diverse levels (e.g., nurses, physicians, allied health professionals, administrative personnel) promotes flattened power dynamics and collective decision-making [9, 14–17]. However, some studies note that junior staff may remain marginalized in hierarchal organizations, preventing true interdisciplinary outcomes [9, 10].

Time-bounded and goal-oriented

The huddle features described in the literature as regular and conducted in a daily manner [4, 15, 16, 18], and can be conducted many times per day or week [19, 20]. Safety huddles are described as brief (5–15 min), with a focused agenda. The brevity is crucial to minimize disruptions while maximizing the effectiveness of communication [1, 7, 10, 16, 21]. Furthermore, their goal-oriented approach emphasizes proactive identification and mitigation of safety risks, rather than reactive management of adverse events [7, 11, 13].

Proactively focused on risk prediction

Another defining feature is their emphasis on proactive safety measures, such as predicting risks, sharing safety concerns, and planning responses. This forward-looking focus distinguishes safety huddles from other practices like post-event debriefings and care rounds [1, 7].

Adaptable to context

Safety huddles are recognized for their adaptability. Implementation studies in diverse contexts, such as maternity care [22], community nursing [8], and acute hospital wards [10], demonstrate the flexibility of huddle structures to meet the unique challenges of specific clinical settings while retaining core principles of teamwork, communication, and situational awareness. Safety huddles consistently incorporate predetermined structures, such as agendas or standardized tools (e.g., checklists, SBAR), to ensure consistent information sharing.

Antecedents of safety huddle in healthcare settings

The antecedents of safety huddle come from the basic motive of healthcare organizations to enhance the patient safety, and address operational obstacles and issues with the organization departments and units [7, 23]. The literature identifies several key factors that facilitate the successful adoption and implementation of safety huddles. These antecedents are consistent across healthcare settings and align with organizational, cultural, and structural elements.

Organizational leadership

A recurring theme is the pivotal role of leadership in promoting a culture that supports safety huddles. Leaders' endorsement, participation, and commitment to this process are critical to building organizational trust and ensuring sustainability [9, 10]. Leadership directly shapes team norms, such as open communication and psychological safety, which are essential for effective huddle implementation [7, 10].

Infrastructure and resources

Reliable tools and dedicated time/resources are prerequisites to conducting safety huddles. Studies highlight that without structured agendas, appropriate physical or virtual spaces, and protected time, safety huddles risk becoming inconsistent or unsustainable [8, 10]. The integration of technology, such as electronic records in community nursing settings, offers opportunities for innovation while presenting logistical barriers [8].

Cultural readiness and psychological safety

Cultural readiness, marked by team members' receptiveness to transparency and collaboration, is another crucial antecedent. A psychologically safe environment, where individuals feel comfortable sharing concerns without fear of retribution, is foundational to achieving the objectives of safety huddles [9, 10].

The necessity for safety huddle emerged and a rose from recognized the significance effect of events and incidents in clinical area like intensive care units in patients' outcomes; The proactive measure of safety issues and concerns before arriving patient and resulting harm is another driven for safety huddle; Establishing and enhancing the culture of safety where all healthcare providers can raise their voice and committed to addressing safety issues without being fear from blaming and punitive response; Additional antecedent for conducting safety huddle is stems from specific organizational goals such as becoming a high-reliability organization [15, 16, 18, 21, 24].

Consequences of safety huddle in healthcare settings

The reviewed studies overwhelmingly highlight the positive outcomes of safety huddles. Despite significant variability in measurement methods, most studies reported observable benefits to patient safety, team dynamics, and organizational culture.

Enhanced communication and teamwork

Improved communication is the most frequently reported consequence of safety huddle implementation

across settings [8–10, 17, 25–27]. Teams that participate in safety huddles consistently exhibit improved teamwork, coordination, and information sharing. This collaborative atmosphere fosters mutual trust and respect among interdisciplinary members, reducing silos and enhancing collective efforts toward shared safety goals [1, 9, 10, 28].

Improved situational awareness and accountability

Another positive impact of the safety huddle is its role in improving the troubleshooting of operational problems [29]. there was consensus among the researchers that the safety huddle enhanced physicians' engagement in patient safety [19]. Safety huddles promote heightened awareness of clinical and organizational risks. This improvement enables faster identification of potential hazards and better preparation for addressing them [9, 13] and sharing solution in a faster manner with empowering front-line staff [30–32]. The concept of "situation awareness," particularly emphasized in pediatric wards in the SAFE program [13], demonstrates huddles' capacity to preempt patient safety incidents. Consistent engagement in safety huddles builds safety-oriented cultures within organizations [6, 9]. By encouraging shared responsibility and accountability, huddles help embed safety practices within daily operations.

Barriers and challenges

Despite their benefits, safety huddles face barriers that may undermine their potential. Workload pressures, time constraints, and resource limitations are frequently cited obstacles [9, 10]. Additional challenges, such as uneven participation and hierarchical dynamics, may exacerbate inequalities within teams, inadvertently creating exclusion for junior or non-clinical staff [9].

Contextual variation of safety huddle in healthcare settings

The extent to which safety huddles are standardized versus adapted remains a prominent issue. Some studies advocate for standardized protocols to ensure uniformity and comparability across settings [7, 11], while others highlight the necessity of tailoring huddles to diverse clinical demands [8, 10]. A tertiary hospital implemented a daily 15-minute huddle to collect the safety concerns among frontline staff and hospital leaders through "Great Catches" within the last 24 hours [16]. Another implementation characteristic is collecting the safety concerns through a detailed checklist covering multiple domains such as patient identification, falling, medication-related errors, and infection control and prevention-related issues [21]. The safety huddle was also implemented at the department level particularly evident in maternity care [22], community nursing [8] and Pediatric Intensive Care Unit where the participants were the department staff including physicians and nurses aimed to control and positively impact the clinical alarms of vulnerable patients at the unit [9]. The huddle adapted also within the pharmacy department [17]. There are additional contextual factors where the safety huddle can be implemented; it can be implemented to focus on hospital culture in addition to the team composition [33–35]. By adjusting safety huddles to the specific context, healthcare organizations can utilize them as a powerful methodology for continuous improvement.

Despite their proven role in enhancing communication and safety culture, safety huddles lack a clear conceptual definition. No study applies Rodgers and Knafl's evolutionary analysis, leaving gaps in understanding their evolution, surrogate terms, and core attributes. Variability in implementation highlights the need for a unified yet adaptable framework.

Discussion

The findings of this study provide an in-depth conceptual analysis of safety huddles in healthcare by synthesizing existing literature and identifying key attributes, antecedents, and consequences. Safety huddles are recognized as interdisciplinary, structured, time-limited, and proactive meetings designed to enhance situational awareness, communication, and teamwork among healthcare staff. However, their variability in design and outcomes across different contexts highlights significant gaps in conceptual clarity and implementation consistency. While this analysis sheds light on the foundational elements of safety huddles, it also surfaces critical challenges and areas requiring further exploration.

Rodgers and Knafl's methodological framework emphasizes the identification of attributes, antecedents, and consequences of evolving concepts in a dynamic, interdisciplinary, and temporal context. This study systematically identifies these core elements for safety huddles, revealing their defining features and enabling factors. However, the literature fails to explicitly engage with the full steps of Rodgers and Knafl's methodology. For example, while numerous studies discuss attributes such as structured communication and interdisciplinary teamwork [6, 7], there is minimal discussion of how these attributes might evolve as healthcare systems face new challenges (e.g., digitalization, staffing shortages, or public health crises). Similarly, surrogate terms and related practices (e.g., "safety rounds," "briefings") are mentioned in the literature but are not rigorously analyzed as part of the broader conceptual landscape of safety huddles [9]. This lack of conceptual alignment limits the ability to delineate safety huddles from adjacent practices, reducing clarity for both researchers and practitioners. The dynamic nature of the concept, which Rodgers and

Knafl's methodology seeks to capture, is insufficiently explored, particularly in terms of how technological advancements, organizational culture, and regulatory frameworks influence the utility and evolution of safety huddles over time.

The conceptual elements identified in this study provide valuable insights into designing and sustaining effective safety huddle practices. Safety huddles exhibit consistent characteristics across diverse settings, including interdisciplinary participation, structured communication, and a proactive focus on risk identification [6, 7, 9, 10]. These attributes align closely with the principles of high-reliability organizations, which emphasize teamwork, situational awareness, and a culture of continuous improvement [6, 9]. However, the attribute of adaptability, which enables huddles to be tailored to specific organizational or clinical contexts [8, 10], poses a challenge for achieving standardization in implementation and evaluation.

Organizational readiness, including leadership support, psychological safety, and cultural openness to transparent communication, emerged as critical enablers [8–10]. These antecedents highlight the reliance of safety huddles on broader structural and cultural factors within healthcare systems. Without such prerequisites, huddles risk becoming a perfunctory exercise rather than a meaningful intervention. Similarly, infrastructure elements such as dedicated time, tools (e.g., checklists, electronic integration), and physical or virtual spaces are foundational for reliable execution [9, 13].

Positive consequences include improved communication, enhanced situational awareness, and strengthened safety culture across teams [7, 9, 10]. These outcomes demonstrate the potential of safety huddles to act as transformative interventions for improving organizational safety. However, several barriers, such as time constraints, workload, and occasional reinforcement of hierarchical dynamics, limit their effectiveness and sustainability [9, 10]. Addressing these unintended consequences is critical to the future success of safety huddles.

Safety huddles vary significantly across clinical contexts, balancing the need for adaptability in design and execution. In community nursing, they address communication gaps across multidisciplinary teams and leverage technology for coordination [8], while in high-acuity maternity wards, huddles are integrated into care bundles to enable real-time responses to emergent clinical situations and mitigate risks [22]. In acute-care inpatient wards, they support daily situational awareness, risk assessment, and cultural shifts toward proactive safety [9, 10]. These variations highlight the tension between standardization and customization, as structure and consistency ensure reliability and shared understanding, but excessive rigidity may hinder the flexibility needed for diverse clinical and organizational demands.

Despite significant progress in understanding the utility of safety huddles, several research limitations remain. No study explicitly applies Rodgers and Knafl's evolutionary concept analysis, leaving gaps in exploring their temporal and interdisciplinary evolution. Additionally, unclear boundaries between safety huddles and related practices, such as safety rounds and team briefings, create challenges in defining core and peripheral attributes. Measurement gaps persist, as most studies rely on observational or qualitative methodologies [9, 10], with limited use of controlled trials or standardized evaluation tools [7], reducing the robustness of outcome assessments. Furthermore, sustainability barriers, including time constraints, staff engagement, and leadership support, are inconsistently addressed, risking the long-term viability of safety huddles as embedded practices.

Limitations

Despite the comprehensive analysis, this study has several limitations. First, the reliance on existing literature introduces potential biases inherent in the primary studies, such as self-reported outcomes and a predominance of qualitative methodologies, which may limit generalizability. The exclusion of non-English studies and those published before 2013 could also omit valuable insights from diverse cultural or historical contexts, potentially skewing the evolutionary perspective of safety huddles. Furthermore, the heterogeneity in how safety huddles are defined, implemented, and evaluated across studies complicates efforts to synthesize a universally applicable framework. For instance, while core attributes like structured communication and interdisciplinary collaboration were recurrent, their operationalization varied significantly, reflecting contextual adaptations that resist standardization. Additionally, the lack of experimental designs in the reviewed literature restricts causal inferences about huddles' direct impact on patient outcomes. These limitations underscore the need for more rigorous, longitudinal studies to disentangle the dynamic interplay of antecedents, attributes, and consequences in diverse healthcare environments.

Recommendations

To address the identified gaps, future research should prioritize mixed-method and experimental designs to evaluate the causal relationships between safety huddles and patient safety outcomes. Standardized metrics for assessing huddle effectiveness such as validated tools for measuring communication quality or situational awareness are urgently needed to enable cross-setting comparisons. Healthcare organizations should invest in leadership training to cultivate psychologically safe environments

where hierarchical barriers are minimized, ensuring equitable participation from all team members. Additionally, adaptive frameworks that balance standardization with contextual flexibility could enhance scalability; for example, modular huddle protocols tailored to unit-specific risks (e.g., maternity wards vs. ICUs) might preserve core principles while accommodating local needs. Policymakers and accrediting bodies should advocate for integrating huddle training into inter-professional education curricula, emphasizing role clarity and collaborative problem-solving. Finally, fostering technological integration, such as digital platforms for real-time issue tracking, could mitigate workflow disruptions and sustain engagement.

Conclusion

Safety huddles represent a pivotal strategy for advancing patient safety through proactive communication and interdisciplinary collaboration. This concept analysis elucidates their core attributes structured, time-bound, and adaptable interactions while highlighting critical antecedents like leadership support and cultural readiness. Despite inconsistencies in implementation, the evidence underscores their potential to enhance situational awareness, accountability, and safety culture. However, the lack of conceptual clarity and methodological rigor in existing literature necessitates a paradigm shift toward standardized yet flexible frameworks. By addressing these challenges through targeted research, training, and policy reforms, healthcare systems can harness safety huddles as a dynamic tool for mitigating risks in an increasingly complex care landscape. Ultimately, the evolution of safety huddles must remain iterative, informed by both empirical evidence and the lived experiences of frontline teams, to sustain their relevance and impact.

Abbreviation

PRISMA Preferred reporting items for systematic reviews and meta-analyses

Acknowledgements

The authors would like to thank An-Najah National University (www.najah.edu) for the technical support provided to publish the present manuscript.

Clinical trial registration

This research did not involve a clinical trial; no clinical trial registration is applicable.

Authors' contributions

I.G contributed to the conception, design, and overall supervision of the concept analysis. He led the literature review and manuscript drafting. A.A assisted with data collection, analysis, and contributed to the methodology section. F.A provided critical insight on the theoretical framework and assisted in revising the manuscript. L.A.D contributed to the literature review, interpretation of findings, and assisted in finalizing the manuscript for submission. All authors reviewed and approved the final version of the manuscript.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Data availability

No datasets were generated or analysed during the current study.

Declarations

Ethics approval and consent to participate

Human Ethics and Consent to Participate declarations: not applicable.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

Received: 4 November 2024 / Accepted: 5 March 2025
Published online: 18 March 2025

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