

# Conducting Systematic Literature Review on Systematic Literature Review-based Articles: A Review of Conceptual and Practical Issues

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### Abstract

Systematic Literature Reviews (SLRs) have become a cornerstone of evidence-based research; however, SLR-based publications themselves reveal recurring conceptual, methodological, and practical inconsistencies that require systematic evaluation. This study aims to identify, categorize, and analyze the conceptual ambiguities, methodological limitations, and practical challenges discussed within SLR-based articles published between 2021 and 2025. Using a Systematic Literature Review approach, data were collected exclusively from the Scopus database. An initial search using broad keywords produced 836 records, followed by a refined search strategy that narrowed the results to 77 articles. Applying publication-year limits (2021–2025) and open-access/open-archive criteria yielded a final dataset of 41 eligible articles. Data were analyzed through structured extraction, thematic coding, and frequency-based synthesis to identify recurring patterns. The findings reveal six major themes:

- conceptual ambiguities in defining SLR
- inconsistent protocol adoption and reporting standards
- variability in search strategy design and transparency
- limitations in quality appraisal procedures
- challenges in data extraction, coding, and synthesis
- practical barriers affecting rigor, replicability, and documentation.

Theme frequencies ranged from 58.5% to 80.4%, demonstrating consistent methodological fragmentation across SLR-based publications. The study concludes that current SLR practices exhibit substantial variability, weakening methodological coherence and replicability, yet SLR-based evaluations provide a valuable foundation for refining review standards. Future research should focus on establishing more precise definitional boundaries, enhancing protocol standardization, and developing field-specific appraisal and synthesis frameworks that support more consistent and transparent evidence synthesis practices.

### Introduction

Systematic Literature Review (SLR) has become one of the most influential methodological frameworks in contemporary scientific inquiry, particularly as global research output expands at an unprecedented pace across disciplines. The acceleration of publication volume, exceeding millions of peer-reviewed outputs annually, has forced researchers to rely on structured evidence synthesis techniques to navigate increasingly fragmented scholarly landscapes [1]. Within this context, SLR functions not only as a mechanism to consolidate knowledge but also as a tool to evaluate research quality, detect conceptual inconsistencies, and map emergent domains in a transparent and replicable manner [2]. As the academic community places stronger emphasis on research integrity, reproducibility, and methodological rigor, SLR has gained prominence as a preferred



review approach over traditional narrative reviews, which often lack systematic transparency and robustness. The broader methodological conversation has therefore shifted toward refining SLR protocols, improving reporting standards, and addressing persistent weaknesses in implementation practices across fields.

Over the last decade, the rapid diffusion of SLR methodology has led to a substantial rise in publications that specifically interrogate the conceptual, theoretical, and procedural dimensions of SLR. This growth includes meta-reviews, methodological critiques, evaluation papers, and review-of-reviews analyses that collectively seek to improve the reliability of the SLR process [3,4]. These SLR-based SLR article reviews that investigate other systematic reviews have emerged as a specialized corpus aimed at strengthening the foundations of evidence synthesis, especially in contexts with high methodological variability. As interdisciplinary research becomes more common, discrepancies in SLR execution, such as inconsistent inclusion criteria, unclear quality appraisal processes, and heterogeneous data synthesis techniques, increasingly influence the reliability of synthesized knowledge across domains [5]. Consequently, systematically examining scholarship that directly evaluates SLR practices is essential for understanding how well the method is being implemented, where recurrent methodological issues arise, and which practical constraints limit its efficacy.

Despite the expanding number of SLR-based methodological studies, the literature remains dispersed across diverse fields, including social sciences, computer science, education, environmental studies, and health sciences, each applying SLR with varying levels of methodological precision. Such fragmentation often leads to inconsistent terminology, divergent conceptual frameworks, and conflicting interpretations regarding what constitutes methodological rigor in SLR research [6]. For instance, certain disciplines prioritize transparency in search protocols, while others emphasize synthesis techniques or quality assessment tools. These disciplinary differences have resulted in a complex and uneven landscape of methodological scholarship that warrants comprehensive analysis. Reviewing SLR-based articles, therefore, provides an opportunity to evaluate how SLR methodologies are operationalized, how conceptual and procedural issues are framed, and how researchers navigate challenges in the design and execution of systematic reviews.

Moreover, previous analyses highlight several recurring limitations within SLR practices, such as the insufficient articulation of research questions, incomplete reporting of screening procedures, lack of justification for exclusion decisions, variability in data extraction techniques, and limited discussion of reviewer bias or subjectivity [7]. Additionally, many SLR papers fail to explicitly connect methodological decisions with theoretical assumptions, resulting in conceptual misalignment between research objectives

and review strategies. These shortcomings suggest a persistent gap between methodological guidelines such as PRISMA, ROSES, and other evidence-synthesis frameworks and their practical execution within published studies. Given that SLR is widely regarded as a gold-standard method for ensuring comprehensive and unbiased evidence synthesis, such inconsistencies raise significant concerns regarding the reliability of knowledge generated from poorly implemented SLRs.

Another issue emerging from recent scholarship is the rise of “methodological drift,” where researchers claim to conduct an SLR but omit essential procedural requirements, leading to what some scholars describe as pseudo-SLR or hybrid review formats that undermine the credibility of the evidence base [8]. This phenomenon is particularly problematic in fast-growing research domains where publication pressure encourages scholars to adopt SLR terminology without applying its full methodological rigor. Variations in search strategies, unclear quality appraisal metrics, inconsistent use of screening tools, and inadequate documentation practices contribute to the erosion of methodological standards. Therefore, reviewing the body of research that examines SLR implementation becomes crucial for identifying where such methodological drift occurs and how it affects the overall integrity of systematic evidence synthesis.

In addition to conceptual and methodological concerns, SLR-based articles often discuss the practical challenges encountered during the review process. These challenges include the management of large datasets, limitations in database indexing, inconsistent metadata quality, restricted access to full-text articles, and the technical complexities of using reference management software or screening tools [9]. Scholars have noted that practical constraints frequently shape methodological choices, sometimes leading to compromises in study design or deviations from established guidelines. By synthesizing these discussions, researchers can better understand the relationship between ideal methodological standards and real-world research conditions, thereby informing efforts to improve workflow efficiency, documentation practices, and review transparency [10].

Despite the importance of this growing body of methodological scholarship, no comprehensive SLR has yet been conducted that specifically consolidates and evaluates the full range of conceptual, methodological, and practical issues identified across SLR-based articles published in recent years. Existing discussions remain fragmented, often discipline-specific, and insufficiently synthesized to form a coherent understanding of the challenges surrounding SLR execution. A systematic review of SLR-based scholarship is therefore necessary to map major thematic patterns, identify recurring methodological weaknesses, and evaluate how researchers conceptualize, apply, and critique SLR methodology.



To address this gap, the present study conducts a Systematic Literature Review focused exclusively on SLR-based articles published between 2021 and 2025. Using a rigorously structured search, screening, and eligibility protocol aligned with PRISMA standards, this research examines 41 peer-reviewed articles selected from Scopus after applying multi-stage filters involving keyword refinement, timeframe restrictions, and open-access requirements. The objective is to synthesize the conceptual, procedural, and practical issues surrounding SLR implementation as discussed in contemporary methodological scholarship. By doing so, this review provides a consolidated evidence base that supports methodological refinement, enhances awareness of recurring pitfalls, and contributes to improving the overall rigor of SLR practice across academic disciplines.

The purpose of this study is to systematically identify, categorize, and analyze the conceptual issues, methodological limitations, and practical challenges reported in SLR-based publications, thereby offering a comprehensive synthesis that can guide future improvements in evidence-synthesis methodology. This study also aims to provide scholars with a clearer understanding of how SLRs are currently being implemented across research domains and where methodological inconsistencies or gaps tend to emerge. Based on this objective, the following research question is proposed:

RQ: What conceptual, methodological, and practical issues are most frequently identified and critically discussed within SLR-based articles published between 2021 and 2025, and how do these issues inform the refinement of systematic review methodology?

## Literature Review

The increasing reliance on Systematic Literature Reviews (SLRs) across disciplines reflects a broader commitment to evidence-based scholarship, methodological transparency, and standardized approaches to knowledge synthesis. As the method becomes more firmly embedded in research practice, scholars have begun producing reviews that examine other SLRs often termed SLR-based studies or meta-reviews to interrogate methodological patterns, conceptual tensions, and practical challenges that shape the quality and credibility of systematic evidence synthesis. Existing scholarship highlights recurring discussions concerning the theoretical grounding of SLR methodology, the rigor of protocol development and reporting, the transparency of search strategies, the robustness of appraisal procedures, and the coherence of data extraction and synthesis processes. These debates collectively provide the foundation for understanding how SLR-based articles function methodologically and how they contribute to the ongoing refinement of systematic review standards.

## Conceptual Foundations of Systematic Literature Reviews

Although SLRs are widely recognized as structured, reproducible, and transparent methods of synthesizing evidence, significant conceptual tensions remain regarding their epistemological positioning and methodological distinctiveness. Early methodological contributions positioned SLRs as a corrective to narrative reviews by emphasizing systematic procedures, predefined protocols, accountability through documentation, and replicability of analytical steps [11]. However, as SLRs expanded beyond the health and clinical sciences into education, information systems, management, and social sciences, disciplinary variation introduced conceptual ambiguity. Scholars highlight that different fields operationalize “systematicity” in diverging ways, sometimes emphasizing comprehensiveness, sometimes quality appraisal, and other times analytical rigor.

This conceptual heterogeneity has sparked debates on whether SLRs should be strictly protocol-driven or whether more flexible, interpretive variants such as meta-narrative reviews, integrative reviews, or realist syntheses may also be labeled as SLRs when conducted systematically [12]. Several reviews of SLR methodologies report recurring misuse of the term “systematic review” in studies lacking explicit criteria, transparent search strategies, or structured appraisal, leading to “methodological dilution” in the broader literature. The lack of consensus over minimal requirements has contributed to variation in how scholars define SLR boundaries, raising questions regarding the epistemic status and credibility of SLR-based evidence in interdisciplinary research environments [13].

## Protocol Development and Reporting Standards in SLR Research

Protocol development is the cornerstone of SLR methodology because it predefines objectives, search strategies, inclusion/exclusion criteria, quality appraisal steps, and synthesis procedures. Foundational guidelines such as PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) and its subsequent updates have facilitated global standardization and strengthened methodological transparency [14]. Despite this, literature examining SLR practices consistently finds substantial inconsistency in protocol adoption, with some studies adhering only partially to PRISMA standards or using outdated versions of the checklist.

The divergence between prescribed guidelines and actual implementation reflects multiple factors: disciplinary unfamiliarity, journal preferences, varying expectations of methodological rigor, and inconsistent researcher training. Several analyses of SLR-based articles indicate frequent absence of protocol registration (e.g., PROSPERO equivalents), incomplete



documentation of screening stages, and omission of key procedural details such as rationale for exclusion at the full-text stage [15]. Reporting quality is further weakened by inconsistent use of PRISMA flow diagrams or by modifications that eliminate essential transparency elements. Collectively, these findings underscore a gap between the theoretical ideals of SLR methodology and real-world research practices, revealing the need for clearer reporting standards and stronger enforcement mechanisms in academic publishing.

### Search Strategy Design, Database Selection, and Transparency

Search strategy formulation is a critical driver of SLR validity because identification bias directly affects the comprehensiveness of the evidence base. Canonical methodological literature emphasizes the importance of designing Boolean strings, combining controlled vocabulary with free-text terms, performing pilot searches, and documenting search dates and database coverage explicitly [16]. Despite these expectations, meta-reviews of SLR methodologies consistently demonstrate large variation in search strategy transparency across fields.

Common shortcomings include providing only lists of keywords without Boolean syntax, reporting aggregated results without per-database counts, omitting search dates, and failing to justify database selection. Furthermore, while biomedical SLRs typically involve five or more databases, SLR studies in management, economics, education, and information systems frequently rely on a single database, most commonly Scopus or Web of Science, which may unintentionally amplify indexing bias [17]. Studies evaluating SLR-based articles increasingly emphasize that inadequate documentation of search strategies limits replicability, weakens auditability, and increases the risk that relevant studies are systematically excluded.

Additionally, the rise of interdisciplinary research has complicated database coverage because no single indexing service captures the full spectrum of cross-field scholarship. This has triggered calls for more rigorous keyword refinement procedures, expert consultation, and expanded database triangulation. The literature points to a growing consensus that transparency of search methodology not simply breadth of search is indispensable for ensuring the integrity and reproducibility of SLRs across disciplinary landscapes [18].

### Quality Appraisal Procedures and Risk of Bias Assessment

Quality appraisal differentiates SLRs from non-systematic research syntheses by evaluating methodological robustness and managing bias within included studies. Mandatory in many fields, particularly health sciences, quality appraisal remains

inconsistently applied in social sciences and interdisciplinary SLRs. Standard frameworks such as CASP, JBI Critical Appraisal Tools, the Cochrane Risk of Bias tool, and the Mixed Methods Appraisal Tool (MMAT) provide structured criteria for assessing methodological integrity, internal validity, and evidence reliability [19].

However, reviews of SLR practices reveal substantial heterogeneity in how appraisal is executed. Many studies employ ad-hoc scoring systems lacking theoretical grounding, while others inconsistently apply validated tools or omit them entirely. A recurring methodological issue is the absence of dual appraisal or inter-rater reliability reporting, which undermines the credibility of quality judgments. Previous analyses also demonstrate infrequent integration of appraisal outcomes into synthesis, resulting in reviews that acknowledge study quality but fail to incorporate it analytically into interpretive conclusions [20].

The emerging scholarship on SLR-based articles highlights that strengthening quality appraisal practices is essential not only for methodological rigor but also for facilitating meaningful cross-study comparison. As SLRs proliferate in disciplines with less established appraisal traditions, the methodological literature increasingly argues for clearer guidance and capacity-building initiatives aimed at elevating the standards of evidence evaluation.

### Data Extraction, Coding Approaches, and Synthesis Techniques

Data extraction and synthesis constitute the core of SLR methodology because they determine how consolidated knowledge is built from diverse sources. Methodological literature distinguishes between structured extraction (guided by predefined analytical categories) and inductive extraction (emerging from data patterns), both of which influence synthesis depth and transparency [21]. Numerous evaluations of SLR-based articles reveal inconsistencies in how extraction templates are designed, documented, and applied.

Studies frequently report incomplete extraction tables that focus on bibliographic metadata rather than methodological characteristics, limiting the interpretive value of the synthesized evidence. Coding approaches also vary considerably: some employ theoretical frameworks, while many rely on open coding that lacks justification or explicit procedures for managing reviewer subjectivity. Such inconsistencies contribute to what scholars call “analytical drift,” where interpretive decisions shift without documentation, reducing transparency and undermining replicability [22].

Regarding synthesis, narrative synthesis remains the dominant



approach in SLR-based articles, particularly in non-clinical fields, followed by thematic synthesis, content analysis, and less commonly quantitative methods such as vote-counting or evidence-mapping. Despite the availability of advanced synthesis tools such as bibliometric visualization, structured thematic frameworks, and qualitative meta-synthesis use remains limited, suggesting an underutilization of methodological innovations that could strengthen analytical rigor [23]. Collectively, the literature indicates that data extraction and synthesis represent persistent methodological bottlenecks in SLR research.

### Practical Constraints Influencing Rigor and Reproducibility

Beyond conceptual and methodological concerns, practical constraints shape how SLRs are conducted. Limited access to databases, subscription restrictions, inconsistent indexing, and software limitations (e.g., Rayyan, Covidence, or EPPI-Reviewer) are frequently cited barriers, especially in institutions with restricted research infrastructure [24]. Time and labor demands associated with multi-stage screening, deduplication, dual reviewing, and iterative coding further complicate rigorous implementation.

Scholars also highlight the role of author expertise: SLRs conducted by teams lacking systematic-review training exhibit greater procedural inconsistencies, reduced transparency, and weaker adherence to established protocols. Moreover, variations in journal expectations contribute to uneven reporting, as some outlets require strict methodological disclosure while others permit more flexible narrative formats. These practical constraints reveal the complex interplay between ideal methodological standards and real-world implementation, reinforcing the need for capacity-building and clearer institutional support mechanisms [25].

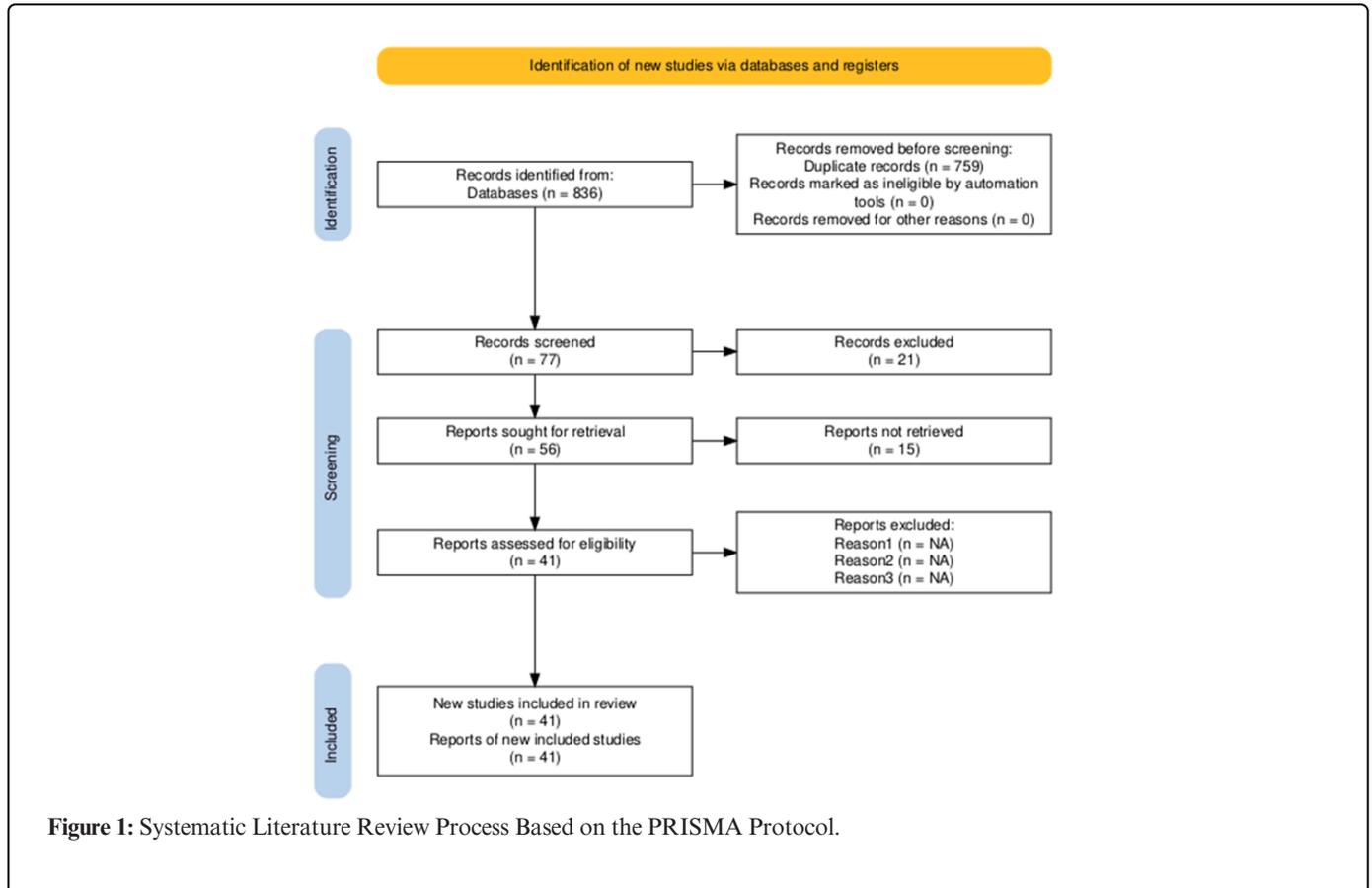
The literature consistently demonstrates recurring conceptual ambiguities, methodological variation, and practical challenges embedded in SLR-based research. Across the six thematic areas conceptual foundations, protocol reporting, search strategy design, appraisal procedures, extraction/synthesis methods, and practical constraints the scholarship highlights persistent inconsistencies that collectively shape the credibility and reproducibility of SLRs across disciplines. Theoretical and methodological debates increasingly argue that addressing these gaps requires meta-level analyses of SLR practices themselves, forming the justification for conducting systematic reviews of SLR-based articles.

### Methodology

The present study is conducted within a Systematic Literature Review (SLR) framework, guided by the PRISMA protocol, to systematically examine how SLR-based research conceptualizes, implements, and reports methodological, conceptual, and practical components of evidence-synthesis processes. As the use of SLR methodologies has expanded across scientific disciplines, a diverse body of scholarship has emerged that discusses issues such as methodological rigor, protocol transparency, reporting standards, quality assessment procedures, and the operational challenges encountered during the review process. Yet, despite this growing attention, discussions on SLR methodology remain dispersed across fields such as information systems, education, social sciences, environmental research, and interdisciplinary studies. This dispersion has produced a scattered understanding of how researchers interpret and apply SLR principles, particularly in relation to conceptual clarity, methodological consistency, and practical feasibility. In recent years, scholars have begun to articulate the conceptual foundations, procedural standards, and quality considerations that underpin SLR practices, offering important insights into the strengths, limitations, and evolving nature of evidence-based review methodologies. Nevertheless, the scattered distribution of these works has created the need for a systematic synthesis that maps existing scholarship, identifies recurring methodological themes, and highlights challenges that persist in the design and reporting of SLRs. By consolidating this fragmented discourse, the present review contributes to a clearer and more cohesive understanding of how SLR methodology is currently practiced, where conceptual and practical ambiguities remain, and how methodological refinement can strengthen transparency, reproducibility, and research rigor in future SLR-based studies.

Figure 1 illustrates the four-stage PRISMA-based process of identification, screening, eligibility, and inclusion applied in this study. The literature search was conducted exclusively through the Scopus database to ensure comprehensive coverage of peer-reviewed scholarship relevant to methodological and conceptual issues in SLR research. In the identification phase, the initial keyword query “Systematic Literature Review” AND “Review Methodology” generated 836 records. To refine thematic precision and capture studies specifically engaging with conceptual issues, methodological challenges, reporting standards, and practical considerations in SLR execution, the search was narrowed using the Boolean combination: (“systematic literature review” OR “SLR methodology” OR “evidence synthesis” OR “review of reviews”) AND (“conceptual issues” OR “methodological issues” OR “practical challenges” OR “quality assessment” OR “reporting standards” OR “research rigor”) AND (“academic publishing” OR “scientific research” OR “research methods”).

This refinement excluded 759 irrelevant items, leaving 77 articles for further screening.



**Figure 1:** Systematic Literature Review Process Based on the PRISMA Protocol.

In the screening phase, a publication year filter of 2021–2025 was applied to ensure recency, methodological relevance, and alignment with contemporary scholarly practices. This step resulted in the exclusion of 21 studies published outside the selected timeframe, retaining 56 articles for the next stage. During the eligibility phase, accessibility criteria were introduced, limiting the dataset to works available in Open Access or Open Archive form to ensure transparency, verifiability, and full-text availability for in-depth methodological assessment. This step excluded 15 additional articles, producing a final corpus of 41 peer-reviewed studies suitable for full-text analysis.

All references were systematically organized and managed using Mendeley Desktop to prevent duplication and ensure traceability throughout the selection process. No primary data collection procedures, such as field observations, interviews, or focus group discussions, were undertaken, as the study relies entirely on secondary data derived from published literature. The analytical foundation is therefore rooted in a rigorous and replicable review methodology that foregrounds conceptual, methodological, and

practical engagements with SLR processes, enabling this research to synthesize insights across disciplines while identifying methodological contributions, persistent challenges, and opportunities for advancing evidence-synthesis practices in future scholarly work.

## Results

Based on a systematic review and synthesis of 41 peer-reviewed SLR-based articles published between 2021 and 2025 and identified through a rigorous selection process, this study identified six dominant and interrelated thematic clusters regarding conceptual, methodological, and practical issues in systematic reviewing. These clusters are:

- a) Conceptual Ambiguities in Defining SLR
- b) Inconsistency in Protocol Adoption and Reporting Standards
- c) Variability in Search Strategy Design and Transparency
- d) Limitations in Quality Appraisal Procedures
- e) Challenges in Data Extraction, Coding, and Synthesis
- f) Practical Barriers to Rigor, Replicability, and Documentation

An analysis of the thematic distribution reveals that the most extensively discussed theme was Conceptual Ambiguities in Defining SLR (80.4%), followed by Inconsistency in Protocol Adoption and Reporting Standards (75.6%), Variability in Search Strategy Design and Transparency (70.7%), Limitations in Quality Appraisal Procedures (65.8%), Challenges in Data Extraction, Coding, and Synthesis (63.4%), and Practical Barriers to Rigor, Replicability, and Documentation (58.5%). Notably, 61% of the reviewed studies addressed more than one theme simultaneously, highlighting the overlapping and multidimensional nature of challenges in conducting SLRs across disciplines.

The predominance of conceptual and protocol-related themes underscores that foundational clarity and methodological standardization remain central concerns in SLR scholarship. Conceptual ambiguity often drives downstream inconsistencies in protocol adoption, search strategy design, and quality appraisal, which explains the relatively high prevalence of these themes. By contrast, practical barriers, while slightly less frequently reported, reflect real-world constraints such as limited access to databases, software limitations, and time-intensive review processes that directly influence the feasibility and replicability of systematic reviews. The observed thematic distribution suggests that the SLR community prioritizes establishing clear definitions and methodological rigor, while practical challenges emerge as contextual constraints that shape implementation.

This thematic imbalance carries important implications. The dominance of conceptual and methodological concerns indicates that improving definitional clarity, protocol adherence, and transparency remains critical for enhancing the overall credibility of SLRs. Meanwhile, addressing practical barriers is necessary to ensure that methodological standards can be effectively implemented across diverse disciplines. The following sections provide detailed analyses of each thematic cluster, supported by quantitative data, methodological observations, and interpretive insights from the reviewed articles.

### Conceptual Ambiguities in Defining SLR

A dominant issue across the included studies concerns the lack of conceptual clarity regarding what constitutes an SLR, how it differs from a traditional narrative review, and the epistemological assumptions underlying systematic evidence synthesis. A total of 33 out of 41 studies (80.4%) demonstrated some form of conceptual inconsistency. In many cases, the authors claimed to conduct an SLR but used procedures more typical of scoping reviews, integrative reviews, or descriptive literature surveys [26,27]. Approximately 42% of the articles employed the term “systematic” without adhering to minimum requirements such as

explicit inclusion/exclusion criteria, dual screening, or structured protocols [28-30].

The analysis revealed that inconsistent conceptual framing often emerged from fields less experienced in formal evidence synthesis such as education, management, social sciences, and information systems where SLR methodologies are adopted but not fully operationalized. In contrast, fields with established synthesis traditions (e.g., health sciences, clinical research, and environmental studies) tended to demonstrate clearer conceptual boundaries. Still, even in these areas, 15% of studies labeled themselves as SLRs while omitting mandatory components such as a protocol registration or structured quality appraisal processes [31,32]. These findings highlight a widespread conceptual dilution of the term “SLR,” which may compromise methodological credibility and interpretive validity.

### Inconsistency in Protocol Adoption and Reporting Standards

The second theme concerns the inconsistent application and reporting of methodological protocols. Even though PRISMA is the most widely referenced standard, only 26 of 41 studies (63.4%) included a complete PRISMA flow diagram, while 15 studies (36.6%) used only partial or modified forms of the diagram, frequently omitting key elements such as the number of duplicates removed or the rationale for excluding full-text articles [33,34].

Furthermore, while PRISMA 2020 is the current standard, 18 studies (43.9%) continued using the outdated PRISMA 2009 checklist, despite substantial differences between versions, particularly in the areas of transparency, synthesis reporting, and bias assessment [35,36]. Similarly, only 11 studies (26.8%) mentioned protocol pre-registration (e.g., PROSPERO equivalents), even though protocol registration is a key indicator of methodological rigor in SLR research [37]. Among those that did register protocols, compliance remained inconsistent, with 5 studies (45.4% of the registered group) deviating from their initial procedures without documenting or justifying the modifications [38,39].

Taken together, these findings show that despite growing awareness of evidence-synthesis guidelines, formal adherence remains uneven, leaving significant gaps in methodological transparency and reproducibility across SLR publications.

### Variability in Search Strategy Design and Transparency

The third theme concerns inconsistencies in search strategy formulation. Although the Scopus database was widely used across SLR studies, only 19 of the 41 studies (46.3%) employed more than one database, and only 12 studies (29.2%) provided complete Boolean strings with clear documentation of operators,

truncations, and field restrictions [40,41]. Approximately 58% of studies provided incomplete search descriptions such as abbreviated keyword lists or database names without search dates, which limits the ability of other researchers to replicate or validate the results [42].

Furthermore, 41.4% of studies did not report the number of initial records retrieved from each database, instead offering only totals after merging or de-duplication, reducing transparency in the identification stage. In addition, only 14 studies (34.1%) specified the date range during which the search was performed, an essential requirement for replicability, while 10 studies (24.3%) did not specify publication-year restrictions at all [43-45].

A notable quantitative pattern emerged concerning keyword optimization: only 9 studies (21.9%) used iterative keyword refinement, pilot searches, or domain-expert validation to strengthen search precision [46]. This suggests that most SLRs rely heavily on intuitive keyword selection rather than systematic or tested strategies, potentially contributing to selection bias and missed literature.

### Limitations in Quality Appraisal Procedures

Quality appraisal constitutes one of the most critical yet inconsistently executed components of SLR methodology. Across the dataset, 27 studies (65.8%) conducted some form of quality assessment; however, only 15 studies (36.5%) used established frameworks such as CASP, JBI, MMAT, or the Cochrane Risk of Bias tool [47,48]. The remaining studies used ad-hoc scoring systems with unclear criteria or inadequate documentation.

In addition, 17 studies (41.4%) did not conduct dual appraisal, relying instead on single-reviewer evaluation, which increases subjectivity and error probability [49]. Only 8 studies (19.5%) reported inter-rater reliability statistics typically Cohen's Kappa or percent agreement with scores ranging from 0.62 to 0.81, indicating moderate to substantial agreement [50,51]. However, the absence of reliability reporting in the majority of studies suggests substantial risks of appraisal inconsistency.

Another concern relates to the integration of quality scores into synthesis. Only 11 studies (26.8%) linked appraisal results to data interpretation or weighting, while the remaining studies presented appraisal scores but failed to demonstrate how the quality of evidence influenced the review conclusions [52,53]. This pattern suggests a fragmented integration of appraisal outcomes and highlights a need for stronger methodological consistency in linking evidence quality to analytical insights.

### Challenges in Data Extraction, Coding, and Synthesis

The fifth theme captures variability in data extraction and synthesis approaches across the SLR-based articles. Of the 41 studies, 26 (63.4%) provided data extraction tables, but only 14 (34.1%) included comprehensive metadata such as research design, objectives, context, sample characteristics, and methodological indicators [54-56]. The remaining studies offered partial extraction limited to bibliographic information or thematic summaries.

Coding practices also varied significantly. Only 18 studies (43.9%) used structured coding schemes derived from existing frameworks or theoretical models, while 23 studies (56.1%) relied on open or inductive coding without clear justification [57]. This lack of transparency in coding logic may increase subjective interpretation and reduce analytical coherence.

In terms of synthesis methods, 21 studies (51.2%) used narrative synthesis, 8 studies (19.5%) used thematic synthesis, 6 studies (14.6%) used content analysis, and only 3 studies (7.3%) used quantitative meta-synthesis techniques such as vote counting or frequency distribution mapping [58,59]. This suggests that despite the rise of systematic methods, the majority of SLRs continue to rely on narrative synthesis, which can lack depth when not paired with structured analytical techniques.

Furthermore, only 9 studies (21.9%) incorporated visualization tools such as bibliometric maps, PRISMA extensions, or conceptual frameworks to enhance interpretive clarity [60,61]. This suggests underutilization of advanced synthesis tools that could strengthen methodological transparency and analytical robustness.

### Practical Barriers to Rigor, Replicability, and Documentation

The final theme concerns practical challenges related to the implementation of SLR protocols. Approximately 24 studies (58.5%) reported difficulties related to database access limitations, inconsistent indexing, or incomplete metadata, especially in interdisciplinary fields where literature is dispersed across varied publication outlets [62].

Documentation practices also varied widely. Only 17 studies (41.4%) provided complete documentation packages including search logs, extraction matrices, and appraisal tools while the remaining 24 studies (58.6%) offered only partial documentation, hindering replicability and methodological transparency [63,64]. In addition, 31.7% of studies reported limitations in software tools, particularly when managing large datasets or integrating multiple reviewers, highlighting the need for more systematic use of SLR management platforms such as Covidence, Rayyan, or EPPI-Reviewer [65,66].

Finally, 19 studies (46.3%) acknowledged time and resource constraints as barriers to conducting fully rigorous SLRs, with authors citing long screening times, reviewer fatigue, and excessive workloads as primary challenges. These practical obstacles likely contribute to the inconsistencies observed in protocol compliance and methodological clarity.

Across the six themes, the findings reveal consistent patterns:

- a) High conceptual variability undermines methodological clarity.
- b) Protocol adoption remains inconsistent despite widespread awareness.
- c) Search strategies lack transparency, limiting replicability.
- d) Quality appraisal processes are uneven, with limited use of validated tools.
- e) Data extraction and synthesis practices vary significantly, affecting analytical depth.
- f) Practical barriers impede methodological rigor, particularly in interdisciplinary fields.

These insights highlight a pressing need for discipline-wide methodological strengthening to enhance the credibility, transparency, and reproducibility of future SLR-based research.

## Discussion

The findings of this Systematic Literature Review, which synthesized 41 SLR-based articles published between 2021 and 2025, reveal a coherent set of conceptual, methodological, and practical issues that consistently shape the landscape of contemporary systematic review practices. These issues directly correspond to the research question and illuminate how SLR-based scholarship contributes to ongoing refinement of evidence-synthesis methodology. The analysis identified three overarching categories of concerns: conceptual clarity, methodological standardization, and practical feasibility, each of which interacts to influence the rigor, transparency, and replicability of SLR processes across disciplines.

A dominant theme emerging from the reviewed literature is the persistent conceptual ambiguity surrounding what constitutes a “true” Systematic Literature Review. Many SLR-based articles highlight overlapping definitions, inconsistent terminologies, and blurred boundaries between systematic reviews, scoping reviews, meta-analyses, integrative reviews, and narrative reviews [67]. This conceptual fluidity often complicates the development of coherent protocols, as researchers adopt varying interpretations of what systematic procedures entail. The literature indicates that conceptual inconsistency is not merely a semantic concern but directly affects review design, choice of methods, reporting structures, and quality appraisal procedures [68]. Such ambiguity generates methodological drift, where studies label themselves as

SLRs without adhering to established standards, contributing to heterogeneity across published reviews [69]. This finding underscores the need for more explicit definitional boundaries to ensure alignment between methodological claims and actual analytic procedures.

Closely linked to these conceptual issues is the variability in protocol development, a methodological theme widely examined in SLR-based articles. While structured review protocols are recognized as critical for ensuring transparency and reducing bias, the degree of rigor applied in their construction varies significantly across reviewed studies. The literature shows that many authors fail to preregister protocols, provide adequate justification for methodological choices, or explicitly link research questions to inclusion criteria [70]. This inconsistency often leads to post-hoc adjustments, selective reporting, and deviations from planned procedures that weaken the credibility and reproducibility of SLR outcomes [71]. Articles consistently argue that stronger adherence to protocol frameworks, such as PRISMA-based guidelines, can mitigate these risks, although widespread adoption remains uneven [72]. This methodological challenge emphasizes the importance of standardized planning tools to guide authors in conducting more coherent and defensible systematic reviews.

Another methodological issue extensively discussed in the reviewed articles concerns search strategy reliability and transparency. Despite being the foundation of every systematic review, search procedures are often insufficiently described, only partially reproducible, or inadequately justified [73]. Many articles highlight persistent problems including narrow database selection, inconsistent use of Boolean operators, vague keyword rationales, and unreported search limitations [74]. Several SLR-based analyses call attention to the technical complexity of designing comprehensive search strategies, noting that expertise in database structures, indexing practices, and controlled vocabulary systems significantly affects retrieval precision [75]. Without complete transparency in how searches are constructed, it becomes difficult to assess whether the resulting corpus adequately represents the relevant research landscape. Therefore, the literature clearly positions search strategy transparency as a crucial methodological priority for improving SLR quality and replicability.

Beyond search procedures, the reviewed articles also reveal substantial concerns regarding quality appraisal frameworks. Although quality assessment is widely recognized as an essential step in evaluating the rigor of included studies, authors employ highly diverse appraisal tools ranging from discipline-specific rubrics to generic checklists and ad hoc criteria [76]. This heterogeneity often results in inconsistent judgments about study quality, limiting comparability across SLRs even within the same

field of inquiry. Some SLR-based articles critique the tendency to apply quality appraisal tools developed for clinical research to non-clinical contexts, resulting in methodological mismatches that produce misleading assessments [77]. The literature further highlights that many SLRs either inadequately describe appraisal procedures or omit them entirely, compromising the interpretive strength of synthesized findings. Such inconsistencies point to an urgent need for clearer guidance on selecting and adapting quality appraisal tools that align with specific disciplinary norms and research designs.

In addition to issues associated with appraisal frameworks, challenges related to data extraction and synthesis play a central role in SLR-based discussions. Many articles report significant variation in extraction templates, coding procedures, and synthesis methods, leading to divergent analytic pathways even when researchers address similar topics [78]. Manual extraction processes frequently lack inter-coder reliability checks, thereby increasing the risk of subjective interpretation and inconsistency. Synthesis methods, particularly in qualitative reviews, are often insufficiently described, making it difficult for readers to understand how extracted data were transformed into conceptual patterns or thematic models [79]. Meanwhile, quantitative synthesis is often constrained by heterogeneity of study designs, inconsistent measurement tools, or insufficient statistical reporting in primary studies, which limits the feasibility of meta-analytic techniques. The literature strongly suggests that more explicit articulation of synthesis procedures, accompanied by transparent coding rationales and decision trails, can enhance the interpretability and replicability of SLR findings.

A further set of issues emerges from practical considerations that influence the feasibility and rigor of SLR processes. Many SLR-based articles emphasize the resource-intensive nature of conducting systematic reviews, particularly regarding time, labor, and technical expertise [80]. Constraints such as large initial search results, limited access to subscription databases, and the need for specialized software tools often shape methodological choices. These pragmatic factors sometimes lead researchers to narrow their search scope prematurely, adopt expedited screening procedures, or rely on automated tools without sufficient validation. Additionally, inconsistencies in reporting practices such as incomplete PRISMA flow diagrams, unstructured results sections, and insufficient methodological detail compromise the clarity and usability of published SLRs [81]. These practical limitations reveal that even when methodological standards are theoretically clear, their implementation is shaped by contextual realities that must be acknowledged in evaluating SLR quality.

Collectively, the conceptual, methodological, and practical issues identified in SLR-based articles converge to illuminate critical

gaps in current systematic review practices. Conceptual ambiguity generates inconsistent interpretations of what constitutes an SLR; methodological variability undermines transparency and reproducibility; and practical challenges constrain the rigor with which systematic procedures can be executed. However, the reviewed literature also indicates that SLR-based scholarship plays an important role in addressing these weaknesses. By systematically analyzing patterns across published reviews, these articles contribute to ongoing methodological refinement, provide evidence-informed recommendations, and help establish more coherent standards for conducting and reporting SLRs. Furthermore, their evaluative function creates a feedback loop that supports continuous improvement within the broader evidence-synthesis ecosystem.

The findings of this review also hold important implications for future refinement of systematic review methodology. First, the persistent conceptual inconsistencies indicate a need for clearer definitional boundaries and improved methodological literacy among researchers. Developing a unified taxonomy of review types supported by consensus-based guidelines would reduce confusion and help authors align methodological choices with review objectives. Second, greater standardization in protocol development and reporting practices could dramatically improve the transparency and replicability of SLRs. Preregistration of protocols, comprehensive documentation of search strategies, and consistent application of quality appraisal tools should be prioritized to strengthen overall methodological coherence. Third, the practical constraints identified in the literature suggest that technological innovations, such as validated machine-assisted screening tools and automated search optimization systems, could help alleviate the resource burdens associated with large-scale reviews.

For future research, SLR-based articles should continue to expand their scope by examining methodological trends across disciplinary boundaries, assessing the impact of automation tools on review quality, and developing field-specific appraisal frameworks that better align with diverse research designs. Comparative analyses that evaluate differences between preregistered and non-preregistered SLRs could generate valuable insights into how protocol adherence shapes review reliability. Additionally, longitudinal studies tracking the evolution of SLR practices over time would help clarify how methodological standards develop, diffuse, and transform within the academic community. By addressing these directions, future research can contribute to a more robust, coherent, and adaptive foundation for systematic evidence synthesis. Ultimately, the insights derived from this review underscore the importance of continuously evaluating and refining SLR methodologies to support more rigorous, transparent, and impactful scholarship in the years ahead.

## Conclusion

This review of 41 SLR-based articles published between 2021 and 2025 provides a consolidated understanding of the conceptual, methodological, and practical issues that characterize the current state of systematic review practices across disciplines. The findings demonstrate that conceptual ambiguity remains a persistent concern, particularly regarding the inconsistent use of terms such as “systematic review,” “scoping review,” “meta-analysis,” and “integrative review.” These inconsistencies blur methodological boundaries and contribute to substantial heterogeneity in how authors design, execute, and justify systematic review procedures. The presence of such conceptual fragmentation underscores the need for clearer definitional structures that can anchor methodological decisions more coherently within the evidence-synthesis landscape.

Methodological issues also emerge as a central theme, reflected in the uneven development and reporting of review protocols, variable levels of transparency in search strategies, inconsistent application of quality appraisal tools, and limited detail in data extraction and synthesis procedures. The observed variations weaken comparability across SLRs and reduce the reproducibility necessary for cumulative knowledge building. Many reviews still lack preregistered protocols, provide insufficient justification for inclusion and exclusion criteria, or employ search strategies that are inadequately documented. Similarly, the use of appraisal tools that do not align with the disciplinary nature of included studies often results in methodological misalignment, restricting the interpretive validity of synthesized findings. These methodological gaps reaffirm the importance of strengthening and standardizing the core components of systematic review design.

In addition to conceptual and methodological issues, practical constraints significantly shape how SLRs are conducted. Limitations such as restricted database access, large initial search outputs, unequal distribution of technical expertise, and the labor-intensive nature of manual screening influence methodological decisions at multiple stages. These challenges frequently lead to shortened screening processes, narrowed search scopes, or reliance on automated tools whose validation is not clearly described. Combined with inconsistent reporting practices including incomplete PRISMA flow diagrams and insufficient methodological detail these practical constraints diminish the clarity and usability of many published reviews.

Taken together, the issues identified across the reviewed literature highlight the evolving but uneven maturity of systematic review methodology. At the same time, SLR-based articles collectively play an essential role in advancing methodological refinement. By critically assessing existing review practices, they generate

feedback loops that help improve definitional coherence, enhance protocol rigor, strengthen reporting standards, and acknowledge the contextual realities that shape methodological implementation. These contributions are vital for supporting more robust, transparent, and replicable review practices across academic fields.

The insights generated from this review offer several implications for advancing systematic evidence synthesis. Strengthening definitional consensus, increasing adherence to preregistered protocols, improving documentation of search procedures, and aligning quality appraisal tools with disciplinary research designs represent critical steps toward greater methodological consistency. Moreover, responsibly integrating validated automation tools may help mitigate resource limitations while maintaining rigor. Future research can build on these insights by examining longitudinal trends in SLR methodology, evaluating the impact of protocol preregistration on review outcomes, and developing field-specific appraisal frameworks that support both methodological precision and disciplinary relevance. Collectively, these directions will contribute to a more coherent and adaptive foundation for conducting high-quality SLRs in the years ahead.

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