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*Concept Paper*

# Validation of the Structured Narrative Review (SNR) Framework Through an International Modified Delphi Consensus Study

**Matteo Luigi Giuseppe Leoni [1,*] and Giustino Varrassi [2,3]**

[1] Department of Medical and Surgical Sciences and Translational Medicine, Sapienza University of Rome, 00189 Rome, Italy
[2] Research Department, Fondazione Paolo Procacci, 00193 Roma, Italy
[3] College of Medicine, University of Baghdad, Baghdad, Iraq
* Correspondence: matteolg.leoni@gmail.com

## Abstract

**Background:** Narrative reviews remain essential for synthesizing complex, multidisciplinary evidence, particularly in heterogeneous and evolving fields. However, their intrinsic subjectivity, risk of selection bias, and limited reproducibility have raised important methodological concerns. To address these limitations, we want to develop the Structured Narrative Review (SNR) Framework as an advanced model to enhance rigor while preserving interpretative flexibility. It will integrates established standards, including SANRA, PRISMA 2020, and PRISMA-ScR, and will be organized into core domains covering reproducible search strategies, evidence stratification, mechanistic synthesis, and epistemological transparency. Although conceptually grounded in methodological triangulation, formal validation is needed to ensure clarity, feasibility, and applicability across disciplines. **Objective:** This protocol will outline an international modified Delphi consensus study aimed at validating the SNR framework. The primary objective will be to achieve expert consensus on the relevance, clarity, and feasibility of each domain, as well as on the overall structure, scoring system, and recommendations for implementation in editorial and peer-review processes. **Methods:** A modified Delphi methodology will be conducted over two to three sequential electronic rounds, following CREDES and ACCORD recommendations. A Steering Committee will supervise the process, and an international panel of 30–50 experts will be recruited based on predefined criteria. In Round 1, participants will rate each SNR domain using a 5-point Likert scale, with consensus defined as ≥80% agreement (scores ≥4). Items not reaching consensus will be revised and reassessed in subsequent rounds. Analyses will include descriptive statistics, intraclass correlation coefficients for inter-rater reliability, and qualitative thematic analysis, performed using R software. **Expected outcomes:** The study is expected to produce a validated SNR framework, a standardized scoring system, and consensus-based recommendations, enhancing transparency, methodological rigor, and reproducibility in narrative reviews.

**Keywords:** structured narrative review; delphi study; consensus methodology; evidence synthesis; reporting standards; SANRA; PRISMA; research methodology

## Introduction

Narrative reviews have historically played a central role in synthesizing scientific knowledge, particularly in fields characterized by conceptual complexity, emerging evidence and interdisciplinary integration [1,2]. Unlike systematic reviews, which prioritize narrowly defined questions and quantitative aggregation, narrative reviews allow for interpretative synthesis,

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hypothesis generation and mechanistic integration across heterogeneous domains [3]. This flexibility is especially relevant in areas such as pain medicine, neuroimmunology, oncology and systems biology, where evidence spans molecular, clinical, and behavioral levels.

However, this flexibility has also generated persistent methodological concerns. Narrative reviews have been criticized for lack of transparency in study selection, susceptibility to author bias, and limited reproducibility, potentially undermining their scientific credibility [4]. In response, Baethge et al. [5] introduced the Scale for the Assessment of Narrative Review Articles (SANRA), a six-item instrument designed to improve reporting quality and editorial assessment. While SANRA has been widely adopted, it remains primarily a reporting-oriented tool and does not fully operationalize the level of methodological rigor expected by contemporary evidence synthesis standards.

Over the past decade, the landscape of scientific publishing has evolved substantially. The introduction of frameworks such as PRISMA 2020 [6], PRISMA-ScR [7] and advances in evidence grading methodologies have established new expectations for transparency, reproducibility, and structured reporting across review types [8,9]. Consequently, narrative reviews are increasingly expected to demonstrate methodological accountability without losing their distinctive integrative strengths.

To address this need, the Structured Narrative Review (SNR) Framework has been proposed as a methodological advancement designed to bridge the gap between traditional narrative and systematic approaches [10]. The SNR framework will introduce core domains encompassing conceptual scope and framing, reproducible search strategies, study selection transparency, evidence stratification, critical appraisal, mechanistic and integrative synthesis, quantitative awareness, bias recognition and epistemological transparency, clinical and translational relevance, reference integrity, structured reporting and limitations reporting. Additionally, the framework includes optional high-level extensions for semi-systematic hybridization and interdisciplinary integration, supported by a standardized scoring system (0–24 points) to facilitate editorial evaluation and peer review.

Although the SNR framework will be conceptually developed through rigorous methodological triangulation, integrating principles from SANRA, PRISMA 2020, PRISMA-ScR and established guidance on narrative synthesis [11,12], formal expert validation is essential to confirm its content validity, operational feasibility and generalizability across scientific disciplines. The Delphi technique represents a well-established and widely accepted methodology for achieving structured expert consensus in situations where empirical evidence alone is insufficient to establish definitive recommendations [13–15]. Modified Delphi approaches have been extensively employed in clinical medicine and health research to develop consensus statements, diagnostic criteria, clinical guidelines and quality assessment tools [16–18].

The present protocol describes the design and methodology of an international modified Delphi consensus study aimed at validating the SNR framework. The study has been designed in accordance with the Conducting and REporting of DElphi Studies (CREDES) recommendations [19] and the ACcurate COnsensus Reporting Document (ACCORD) guideline [20], ensuring methodological rigor, transparency and reproducibility.

## Objectives

*Primary Objectives*

The primary objective of this Delphi consensus study is to achieve international expert agreement on key components of the SNR framework. Specifically, the study aims to evaluate the relevance, clarity, and feasibility of each of the core SNR domains, as well as to assess the overall structure and comprehensiveness of the framework architecture. In addition, consensus will be sought on the appropriateness and applicability of the standardized scoring system (0–2 per domain) and its associated quality thresholds. Finally, the study intends to generate expert-driven

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recommendations for the adoption of the SNR framework within editorial processes and its integration into peer-review workflows.

*Secondary Objectives*

Secondary objectives include identifying priorities for subsequent empirical validation studies, evaluating the need for discipline-specific adaptations, and defining pathways for dissemination and endorsement by scientific journals and professional societies.

## Methods

*Study Design*

The validation of the SNR framework will follow a structured international consensus process based on a modified Delphi methodology. The Delphi method is a systematic and iterative approach designed to obtain convergence of expert opinion through sequential rounds of anonymous evaluation and controlled feedback [13]. This methodology is particularly well suited when evidence is emerging, heterogeneous, or insufficient to support definitive conclusions through empirical research alone [14,15]. The modified Delphi approach adopted in this study incorporates an initial conceptual framework developed a priori by the Steering Committee, which is then submitted to the expert panel for iterative evaluation and refinement, rather than beginning with entirely open-ended questions [16].

The reporting of this consensus initiative will adhere to the CREDES recommendations [19] and the ACCORD guideline [20], as well as the EQUATOR Network standards for transparent reporting of health research [21]. This protocol has been developed following the principles outlined in the SPIRIT 2013 statement for clinical trial protocols, adapted for consensus methodology [22].

*Steering Committee*

A multidisciplinary Steering Committee will oversee the design and execution of the consensus process. The committee will consist of 6-10 internationally recognized experts with documented expertise in evidence synthesis methodology, clinical epidemiology, translational research and scientific publishing. The composition will ensure disciplinary diversity across relevant fields, including but not limited to clinical research methodology, biostatistics, library science and editorial practice.

The responsibilities of the Steering Committee will include: defining the conceptual framework and operational definitions for each SNR domain; preparing the Delphi survey instruments; analyzing responses and determining consensus outcomes; preparing the final consensus manuscript; and developing implementation recommendations. All members of the Steering Committee will disclose potential conflicts of interest prior to participation, consistent with the International Committee of Medical Journal Editors (ICMJE) recommendations [23].

*Selection of the Expert Panel*

The Delphi panel will include 30-50 international experts selected according to predefined eligibility criteria. This sample size is consistent with published recommendations for Delphi studies in health sciences, in which panels of 15–50 purposively selected participants are considered sufficient to achieve reliable consensus [24–26]. Larger panels are recommended when broad geographic representation and disciplinary diversity are sought, as in the present study.

Potential panelists will be identified based on the following criteria: authorship of at least two peer-reviewed publications in the fields of evidence synthesis, narrative or systematic review methodology, or clinical research methodology; leadership or active membership in international organizations related to evidence-based medicine or research methodology (e.g., Cochrane, JBI, EQUATOR Network); demonstrated expertise in narrative synthesis, scoping reviews, or

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methodological development; and geographic representation across multiple continents to enhance the generalizability of the consensus.

Experts will be invited via personalized email containing detailed information about the study objectives, methodology, expected time commitment and data handling procedures. Participation will be voluntary, and informed consent will be obtained electronically prior to enrollment. The Delphi panel will aim to achieve balanced representation across medical disciplines (e.g., clinical epidemiology, public health, clinical specialties, research methodology) and geographic regions.

*Development of the Initial Survey Instrument*

The preliminary Delphi survey instrument will be developed by the Steering Committee based on the core domains of the SNR framework. Each domain will be presented with its operational definition, key components, and assessment criteria. For each domain, panelists will be asked to evaluate the following dimensions:

1. Relevance: Does this domain address a meaningful methodological aspect of narrative review quality?

2. Clarity: Is the domain definition clear, unambiguous and operationally interpretable?

3. Feasibility: Can this domain be reliably assessed in practice by editors, reviewers and authors?

Each dimension will be rated using a 5-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = partially agree, 4 = agree, 5 = strongly agree). Additionally, panelists will be invited to evaluate the overall framework structure, the proposed scoring system and the optional high-level extensions. Open-text fields will be provided for qualitative comments, suggested modifications and proposals for additional domains. The survey instrument will be piloted with a small group of methodological experts (n = 3-5) external to the Delphi panel prior to Round 1 to assess comprehensibility, completion time and technical functionality.

Table 1 provides an overview of the core domains of the SNR framework, outlining the key methodological components used to guide the Delphi evaluation and ensure rigor, transparency and clinical relevance in the synthesis process.

**Table 1.** Overview of the proposed core SNR domains submitted for Delphi evaluation.

| No. | Domain | Description |
|---|---|---|
| 1 | **Conceptual Scope and Framing** | Explicit definition of review boundaries using structured approaches (e.g., PCC) |
| 2 | **Reproducible Search Strategy** | Transparent reporting of databases, temporal scope, search terms, and Boolean operators |
| 3 | **Study Selection Transparency** | Explicit inclusion/exclusion criteria with clear selection logic |
| 4 | **Evidence Stratification** | Systematic categorization of evidence by methodological rigor (RCTs, observational, preclinical) |
| 5 | **Critical Appraisal** | Structured qualitative assessment of internal validity and methodological limitations |

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| | | |
|---|---|---|
| 6 | **Mechanistic and Integrative Synthesis** | Cross-domain integration linking biological mechanisms with clinical outcomes |
| 7 | **Quantitative Awareness** | Reporting of numerical findings (effect sizes, prevalence) where available |
| 8 | **Bias Recognition and Epistemological Transparency** | Explicit discussion of selection, interpretative, and publication bias |
| 9 | **Clinical and Translational Relevance** | Clear articulation of implications for practice and research |
| 10 | **Reference Integrity** | Use of peer-reviewed primary sources with DOI verification |
| 11 | **Structured Reporting** | Organized manuscript (Introduction, Methods, Synthesis, Discussion, Limitations, Conclusions) |
| 12 | **Limitations of the Narrative Approach** | Acknowledgment of inherent limitations of narrative synthesis |

PCC = Population-Concept-Context; RCTs = Randomized Controlled Trials; DOI = Digital Object Identifier.

*Delphi Process*

The consensus process will consist of two, or if required, three sequential Delphi rounds conducted electronically using a secure online survey platform (Google Forms). Anonymity of responses will be maintained throughout all rounds, consistent with the core principles of the Delphi technique [13,19].

*Round 1*

In the first round, panelists will independently evaluate each of the SNR domains across the three dimensions of relevance, clarity and feasibility using the 5-point Likert scale described above. Additionally, panelists will rate the overall framework structure, the scoring system (0–2 per domain), and the proposed quality thresholds (≥85% = high quality; 70–85% = moderate; <70% = insufficient). Participants will also be invited to provide qualitative comments, suggest modifications to domain definitions or scope and propose additional domains if warranted. The Steering Committee will analyze all responses, calculate descriptive statistics, and identify items reaching or failing to reach the predefined consensus threshold. Items failing to achieve consensus will be revised based on aggregated expert feedback.

*Round 2*

In the second round, panelists will be provided with the aggregated results from Round 1, including summary statistics (median, interquartile range, percentage agreement) and anonymized qualitative feedback from other participants. Revised items and any newly proposed domains will be presented for re-evaluation using the same Likert scale. This controlled feedback mechanism allows experts to reconsider their assessments in light of the collective group opinion while

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maintaining anonymity, thereby facilitating convergence toward consensus [13,27]. Consensus will be assessed using the same a priori threshold (≥80% agreement at scores ≥4).

*Round 3 (Conditional)*

A third Delphi round will be conducted only if consensus has not been achieved on specific domains or methodological aspects after Round 2. In this round, panelists will vote on the final formulation of unresolved items. If consensus remains elusive after three rounds, the area of persistent disagreement will be transparently reported and discussed in the final manuscript, consistent with CREDES recommendations [19]. The stability of responses across rounds will be assessed to determine whether additional iterations are likely to produce further convergence [28].

*Definition of Consensus*

Consensus will be defined a priori as at least 80% of respondents rating an item with a score of 4 or 5 (agree or strongly agree) on the 5-point Likert scale. This threshold is consistent with widely adopted standards in Delphi research and has been recommended by multiple methodological reviews [17,24,29]. Consensus will be further categorized as follows: 90–100% agreement = strong consensus; 80–89% agreement = consensus; 70–79% agreement = near-consensus (item retained for re-evaluation); <70% agreement = no consensus (item revised or removed).

Items achieving strong consensus or consensus will be included in the final validated version of the SNR framework. Items achieving near-consensus will be revised and re-submitted in subsequent rounds. Items that fail to reach 70% agreement after the final round will be excluded from the core framework, although they may be retained as optional recommendations if supported by qualitative feedback.

*Statistical Analysis*

Descriptive statistics will be used to summarize the results of each Delphi round. For each domain and each evaluation dimension (relevance, clarity, feasibility), the following metrics will be calculated: median Likert score, interquartile range (IQR), mean score with standard deviation and percentage agreement (proportion of ratings ≥4). Changes in agreement across rounds will be quantified and reported as absolute differences (Δ%).

Inter-rater reliability will be assessed using the intraclass correlation coefficient (ICC) with a two-way random effects model for absolute agreement. ICC values will be interpreted according to established benchmarks: <0.50 = poor, 0.50–0.75 = moderate, 0.75–0.90 = good, and >0.90 = excellent agreement [30]. The stability of responses across Delphi rounds will be evaluated by comparing median scores and percentage agreement between consecutive rounds, with stability defined as a change of less than 15% in agreement for any given item [28]. Qualitative comments from participants will be analyzed using thematic synthesis to identify recurring themes, suggestions, and concerns. All quantitative analyses will be performed using R software, version 4.3.2 or later (R Foundation for Statistical Computing, Vienna, Austria; www.r-project.org).

*Ethical Considerations*

The Delphi consensus process involves the voluntary participation of expert clinicians and researchers and does not involve patient data, biological samples, or clinical interventions. Participation will be anonymous during all Delphi rounds, and all responses will be handled confidentially. Nevertheless, the study protocol will be submitted for review to an institutional ethics committee to ensure compliance with international standards for research integrity, including the Declaration of Helsinki [31] and applicable data protection regulations (General Data Protection Regulation, GDPR, where applicable). Written informed consent will be obtained electronically from all participants prior to enrollment, with explicit information regarding data handling, anonymization procedures, and publication of aggregated results.

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*Data Management and Quality Assurance*

All survey data will be collected and stored on a secure, encrypted online platform with access restricted to authorized members of the Steering Committee. Data will be anonymized at the point of analysis to prevent identification of individual respondents. Regular data quality checks will be performed to ensure completeness and consistency of responses. The survey platform will include automated validation rules to minimize missing data and entry errors. A detailed audit trail of all methodological decisions, including revisions to survey items and rationale for changes between rounds, will be maintained and reported in the final manuscript.

*Expected Outcomes*

The Delphi consensus process is expected to generate several key outputs. First, it will produce a validated version of the SNR framework, consisting of expert-endorsed core domains with refined operational definitions. Second, it will establish a standardized scoring system (0–24 points), including empirically supported thresholds to guide editorial assessment and peer review. Third, it will provide consensus-based recommendations for the adoption and integration of the SNR framework within journal editorial workflows. Additionally, the process will identify priorities for future research, particularly in relation to empirical validation, inter-rater reliability, and the framework's ability to discriminate between different levels of methodological quality in published narrative reviews. Finally, recommendations will be developed for discipline-specific adaptations and potential digital implementation of the SNR assessment tool. Collectively, these outputs will lay the foundation for a future international consensus statement on narrative review methodology, with the aim of harmonizing standards across biomedical research and reinforcing the role of narrative synthesis within the broader evidence ecosystem.

Figure 1 illustrates the structured workflow of the modified Delphi consensus process, detailing the sequential rounds, decision nodes, and analytical steps leading to validation of the SNR framework.

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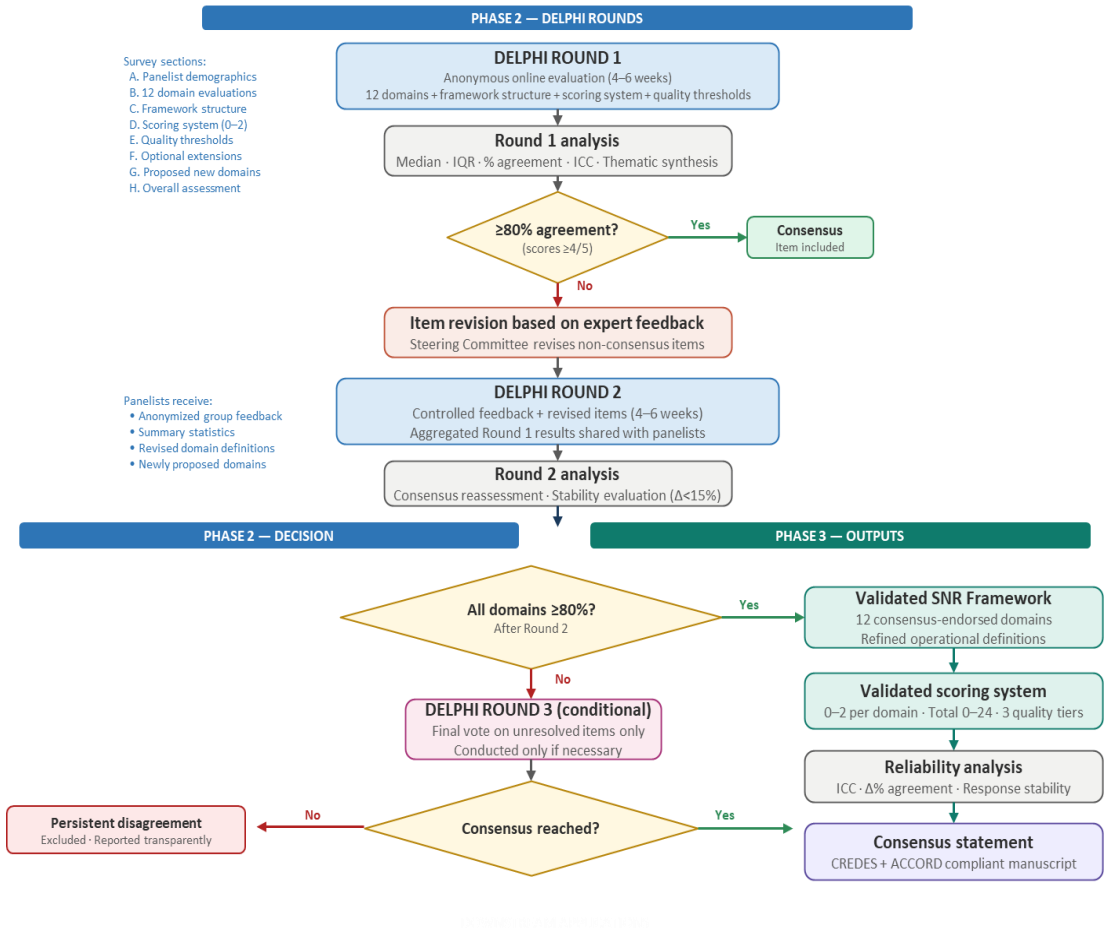



**Figure 1.** Workflow of the modified Delphi process for validation of the SNR framework, showing iterative consensus rounds, item revision, and final outputs including framework validation, scoring system, and consensus statement.

## Discussion

This protocol presents the methodological framework for an international modified Delphi consensus study designed to validate the SNR Framework. The study addresses a recognized gap in evidence synthesis methodology: the absence of a comprehensive, domain-based quality assessment tool specifically designed for narrative reviews that balances methodological rigor with interpretative flexibility [3,5,32].

The Delphi technique was selected as the most appropriate methodology for this validation study for several reasons. First, narrative review methodology represents a field in which established empirical evidence is limited and expert judgment is essential for evaluating methodological constructs [13,14]. Second, the iterative and anonymous nature of the Delphi process allows for convergence of expert opinion while minimizing the influence of dominant personalities, conformity pressure, and group dynamics that may affect face-to-face consensus methods [15,27]. Finally, the electronic format facilitates the inclusion of geographically dispersed international experts, enhancing the representativeness and generalizability of the resulting consensus [16,19].

Several methodological tools currently exist for evaluating review quality, including SANRA for narrative reviews [5], PRISMA 2020 for systematic reviews [6], PRISMA-ScR for scoping reviews [7] and AMSTAR 2 for systematic review quality assessment [33]. However, none of these tools provides a comprehensive, domain-based framework specifically tailored to the unique methodological characteristics of narrative reviews. SANRA, while a pioneering contribution, comprises only six items and focuses primarily on reporting quality rather than methodological rigor. The SNR framework will extend beyond SANRA by incorporating elements of evidence stratification,

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mechanistic synthesis, quantitative awareness, and epistemological transparency, thereby addressing the full spectrum of methodological expectations for contemporary narrative reviews.

The Delphi validation process described in this protocol draws methodological inspiration from comparable initiatives in related fields. Notably, the modified Delphi approach has been successfully employed for the development of clinical assessment tools [34], diagnostic criteria [35] and reporting guidelines, as exemplified by the ACCORD development process [20]. The present study applies similar methodological rigor to the domain of narrative review methodology, an area that has received comparatively less attention in terms of formal consensus development.

The proposed study incorporates several methodological strengths. The use of a priori consensus thresholds and transparent decision rules enhances reproducibility and reduces the risk of post hoc adjustment of criteria [17,29]. The multi-dimensional evaluation approach (relevance, clarity, feasibility) ensures that the framework is assessed not only for its conceptual soundness but also for its practical applicability. The inclusion of inter-rater reliability analysis using the ICC provides an additional layer of methodological rigor beyond simple percentage agreement [30]. Furthermore, the integration of qualitative thematic analysis alongside quantitative metrics enables a richer understanding of expert perspectives and facilitates the identification of areas requiring conceptual refinement.

*Potential Limitations*

Several potential limitations should be acknowledged. First, the Delphi technique inherently relies on expert opinion and consensus does not necessarily equate to scientific truth [15]. The resulting framework will require subsequent empirical validation, including inter-rater reliability studies using published narrative reviews and assessment of discriminative validity across different quality levels. The careful selection of experts, while necessary to ensure relevant expertise, may introduce selection bias. Efforts to mitigate this bias will include transparent reporting of selection criteria, demographic characteristics of the panel and response rates across rounds [19]. Attrition between Delphi rounds may affect the stability and representativeness of the consensus. The study will monitor retention rates and assess potential differences between completers and non-completers. The definition of consensus at 80% agreement, while widely adopted, remains somewhat arbitrary and different thresholds could yield different results [17,29]. The sensitivity of the findings to alternative thresholds will be explored in supplementary analyses.

*Implications for Practice and Research*

If validated, the SNR framework may offer significant benefits for multiple stakeholders. For authors, it provides clear methodological guidance for conducting and reporting high-quality narrative reviews. For editors and peer reviewers, it offers a structured appraisal tool analogous in function to CONSORT for randomized trials and PRISMA for systematic reviews, facilitating more consistent and objective evaluation processes. For the broader scientific community, the adoption of the SNR framework may contribute to harmonizing narrative review standards, enhancing the credibility of narrative synthesis, and promoting its continued role in advancing translational and interdisciplinary research [10,32].

Future research should focus on empirical testing of the validated SNR framework across diverse disciplines, development of training resources and implementation toolkits, and evaluation of its impact on the quality of published narrative reviews through before-and-after studies or controlled comparisons.

## Conclusion

This protocol describes a rigorous and transparent methodology for the international Delphi-based definition and validation of the SNR Framework. By adhering to established guidelines for Delphi study conduct and reporting, including CREDES and ACCORD, the proposed study aims to

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produce a validated, expert-endorsed methodological tool that advances narrative review quality beyond current standards. The successful completion of this Delphi consensus process will provide the foundation for broader adoption and empirical testing of the SNR framework across biomedical research disciplines.

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**Conflicts of Interest:** The authors declare that they have no competing interests relevant to the content of this article.

## List of Abbreviations

| Abbreviation | Full Term |
|---|---|
| **ACCORD** | ACcurate COnsensus Reporting Document |
| **AMSTAR** | A MeaSurement Tool to Assess Systematic Reviews |
| **CONSORT** | Consolidated Standards of Reporting Trials |
| **CREDES** | Conducting and REporting of DElphi Studies |
| **DOI** | Digital Object Identifier |
| **EQUATOR** | Enhancing the QUAlity and Transparency Of Health Research |
| **GDPR** | General Data Protection Regulation |
| **GRADE** | Grading of Recommendations Assessment, Development and Evaluation |
| **ICC** | Intraclass Correlation Coefficient |
| **ICMJE** | International Committee of Medical Journal Editors |
| **IQR** | Interquartile Range |
| **JBI** | Joanna Briggs Institute |
| **PCC** | Population-Concept-Context |
| **PRISMA** | Preferred Reporting Items for Systematic Reviews and Meta-Analyses |
| **PRISMA-ScR** | PRISMA Extension for Scoping Reviews |
| **RCT** | Randomized Controlled Trial |
| **SANRA** | Scale for the Assessment of Narrative Review Articles |
| **SNR** | Structured Narrative Review |
| **SPIRIT** | Standard Protocol Items: Recommendations for Interventional Trials |

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