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Methods and results of studies on reporting guideline adherence are poorly reported: a meta-research study

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ABSTRACT

Objectives: We investigated recent meta-research studies on adherence to 4 reporting guidelines to determine the proportion that provided (1) an explanation for how adherence to guideline items was rated and (2) results from all included individual studies. We examined conclusions of each meta-research study to evaluate possible repetitive and similar findings.

Study Design and Setting: Cross-sectional meta-research study. MEDLINE (Ovid) was searched on July 5, 2022 for studies that used any version of the CONSORT, PRISMA, STARD, or STROBE reporting guidelines or their extensions to evaluate reporting.

Results: Of 148 included meta-research studies published between August 2020 and June 2022, 14 (10%, 95% confidence interval [CI] 6% to 15%) provided a fully replicable explanation of how they coded the adherence ratings and 49 (33%, 95% CI 26% to 41%) completely reported individual study results. Of 90 studies that classified reporting as adequate or inadequate in the study abstract, 6 (7%, 95% CI 3% to 14%) concluded that reporting was adequate, but none of those 6 studies provided information on how items were coded or provided item-level results for included studies.

Conclusions: Almost all included meta-research studies found that reporting in health research is suboptimal. However, few of these reported enough information for verification or replication.

Keywords: Research waste; reproducibility; replicability; checklist; checklists; research-on-research

Running Title: Reporting adequacy in studies on adherence to reporting guidelines

Word count: 3,351

What is new?

Key findings

- 10% of 148 meta-research studies included enough information on how they coded adherence ratings to understand how studies were rated or to replicate studies
- 33% provided results for individual included studies
- Almost all studies reached the conclusion that reporting is not adequate

What this adds to what is known

- Meta-research on reporting guideline adherence may be contributing to research waste due to poor reporting and repetitive results

What is the implication, what should change now?

- Meta-researchers should shift focus away from further documenting poor reporting to developing, testing, and disseminating effective strategies to improve reporting

1. INTRODUCTION

Meta-research studies are conducted to identify areas where research design, conduct, or reporting could be improved and, thus, reduce research waste.[1-6] Meta-research itself, however, can be wasteful if it is poorly designed or reported or does not add substantively to knowledge.

Many meta-research studies evaluate reporting in health research studies based on checklists from reporting guidelines,[7,8] such as the Consolidated Standards of Reporting Trials (CONSORT),[9] Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA),[10] Standards for the Reporting of Diagnostic Accuracy Studies (STARD),[11] or Strengthening the Reporting of Observational Studies in Epidemiology (STROBE).[12]

There are no reporting guidelines for meta-research, but many meta-research studies use methods closely aligned with systematic review methods.[13–18] The PRISMA statement for systematic reviews and meta-analyses stipulates that data collection and coding methods are defined and that results of all individual included studies are provided.[10]

The translation of individual guideline items into evaluations of reporting and the results from individual included studies are core elements of studies on reporting guideline adherence. Many reporting guideline items are multifaceted.[19] Not defining how these items are translated into ratings in meta-research creates risk of unreliable or invalid coding and poses a barrier to replication. Similarly, not reporting individual study-level results does not allow verification or permit users to identify studies of interest.

We evaluated recent meta-research studies on reporting in health research studies that used the CONSORT,[9] PRISMA,[10] STARD,[11] or STROBE[12] guidelines or one of their extensions and determined the proportion that provided (1) an explanation for how guideline items were translated into adherence ratings and (2) results from each included study. Additionally, we

evaluated the studies' conclusions to assess whether they are likely generating new knowledge versus addressing questions to which the answer is already known.

2. MATERIALS & METHODS

We conducted a cross-sectional evaluation of recently published meta-research studies that evaluated adequacy of health research study reporting. We posted our study protocol on the Open Science Framework (https://osf.io/gtm4z/) prior to initiation. The present study is reported consistent with applicable PRISMA[10] items as these most closely align with our study design.

2.1 Eligibility

Studies published in any language were eligible if they used any version of the CONSORT,[9] PRISMA,[10] STARD,[11] or STROBE[12] reporting guidelines or their extensions (e.g., CONSORT-ROUTINE,[20] PRISMA-DTA,[21] STROBE-MR[22]) to evaluate reporting in human health research publications. We selected these reporting guidelines for our study based on a pre-study review of citations to reporting guideline publications listed on the EQUATOR website[19]; these guidelines were by far the most highly cited.

Included studies must have mentioned the name of an eligible guideline in their abstract. Studies that evaluated reporting using multiple reporting guidelines were eligible if at least one of the guidelines was eligible. Studies that investigated reporting as one of multiple research questions or assessed reporting as part of another research question were eligible. For consistency, we excluded studies that evaluated reporting based on checklists that included modified items from an otherwise eligible reporting guideline checklist (i.e., changed, removed, or added item content), added items to a checklist, or evaluated fewer than half of items in a checklist as this could create subsets of items or checklists with a different level of coding

complexity. We excluded studies that evaluated < 10 publications to avoid including studies that targeted single studies or small groups of studies to illustrate known reporting deficiencies.

2.2 Search and Study Selection Method

We searched MEDLINE (ALL) via Ovid using the search strategy: (((quality or complete* or adequat* or transparen*) adj3 reporting) AND (CONSORT* or PRISMA* or STROBE* or STARD* or "Consolidated Standards of Reporting Trials" or "Preferred Reporting Items for Systematic Reviews" or "Standards for Reporting Diagnostic accuracy studies" or "Strengthening the Reporting of Observational Studies in Epidemiology")).tw,kf. The principal investigator (BDT) worked with an experienced health sciences librarian (JTB) to develop the search. The search was run by a trained research assistant (KL) on July 5, 2022. See Appendix A for complete details on our search strategy. To include the most recently published meta-research studies, which would reflect relatively current practices, we reviewed citations identified in the search in reverse chronological order based on their PubMed Unique Identifier until we obtained our targeted sample size. Citations were uploaded to DistillerSR (Evidence Partners, Ottawa, Canada). Two reviewers (TDS, LSNA) independently assessed study eligibility at the title and abstract level. If either reviewer deemed a study potentially eligible, two reviewers (TDS, LSNA, AT) independently assessed eligibility via full-text review. Discrepancies at the full-text level were resolved by consensus between reviewers, with a third reviewer (BDT) consulted as necessary. Appendix B includes coding guides for determining eligibility.

2.3 Sample Size Calculation

Our experience, prior to initiating this study, in reviewing studies on adherence to reporting guidelines suggested that few studies provide coding definitions or report individual study results. We therefore hypothesized that the proportion of included articles that provided

either would be small. Thus, we set our sample size to have a 95% confidence interval (CI) width of 15% around a percentage reporting of 33%. Based on CIs calculated using Agresti and Coull's method,[23] we sought to obtain 148 studies.

2.4 Data Extraction

For each eligible meta-research study, data were extracted in DistillerSR by a single reviewer (TDS, LSNA) and validated by a second reviewer (TDS, LSNA, AT) using the DistillerSR Quality Control function. Discrepancies were resolved by consensus between reviewers with a third reviewer (BDT) consulted as necessary. See Appendix C for the data extraction form. Reviewers extracted (1) publication characteristics (first author last name; publication year; journal and 2021 journal impact factor); (2) country of corresponding author affiliations; (3) research question (research question related to reporting only; main research question was related to reporting only with other non-reporting questions; there were multiple research questions, including questions related to reporting and non-reporting questions, and main one is unclear; main research question was not related to reporting, but an eligible reporting analysis was conducted) (4) reporting guideline(s) evaluated; (5) number of publications included in the study; (6) main eligibility criteria of included publications (by reporting guideline, study design, field of research, patient population, intervention type, journal, other); (7) number of raters; (8) independence of raters; (9) rating method used (e.g., yes/no, fully/partially/not reported); and (10) conclusion about reporting adequacy. We reviewed abstracts to extract conclusions as these are the most read, and in many cases, the only part of an article that is read.[24]

If a study's supplementary material was not accessible via the publishing journal's website, we contacted the corresponding author and journal editorial manager or editor-in-chief

to request access. We sent up to 2 follow-up emails per study to corresponding authors and journal staff; if we did not receive a response, we coded the study based on available information.

To answer our main research questions, reviewers extracted (1) whether the authors provided an explanation for translating items into adherence ratings with enough information to be replicated and (2) if the authors provided results for each individual study included in their report. We searched for this information in the main study text and tables, supplementary material, and via any internet links provided. Explanations for how they coded adherence ratings must have specifically reported which parts of each item were required for the item to be coded as adequately reported. We coded conclusions about adequacy as adequate, inadequate – implicit, inadequate – explicit, mixed, vague, or no mention. Definitions for each are in Appendix C. For individual study results, we coded whether authors reported results for each item for all studies, reported partially (e.g., an overall score but not item ratings for each study), or did not report individual study results. See Appendices D and E for the coding manual.

2.5 Analysis

We calculated the proportions of meta-research studies that provided (1) a coding guide for translating reporting guideline items into ratings with enough information for replication and (2) results for each included study. All proportions are presented with 95% CIs using the method of Agresti and Coull.[23] We also present results by subgroups defined by country of corresponding author affiliations, 2021 journal impact factor, reporting guideline evaluated, and research question (main research question related or not related to reporting). When presenting outcomes by subgroups, we included guideline extensions (e.g., CONSORT-ROUTINE) with the main guideline (e.g., CONSORT). The 4 subgroup analyses were established a priori. For the only

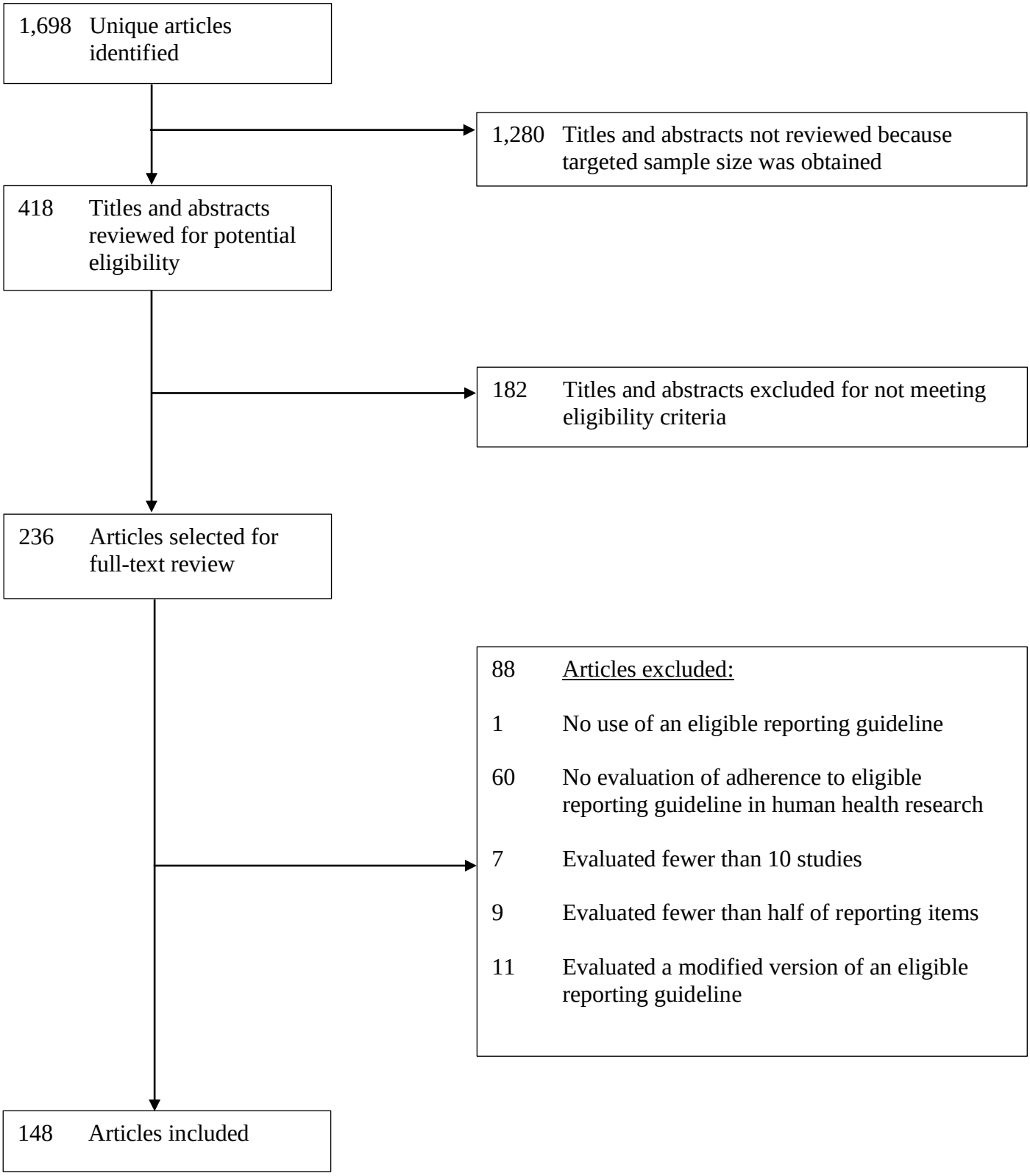
quantitative grouping (by journal impact factor), the subgroups were established based on frequency data. We did not conduct statistical tests to compare subgroups because our study was not designed or powered for that purpose.

3. RESULTS

3.1 Search Results and Included Study Characteristics

Our search yielded 1,698 unique titles and abstracts. We excluded 182 titles and abstracts and 88 full texts, reviewing in reverse chronological order, until we obtained 148 included studies (Figure 1). Reasons for exclusion at the full-text level and references are shown in Appendix F. We were initially unable to find or access supplementary files for 2 out of 148 studies. We contacted the authors and journal editors for these missing supplementary files and successfully obtained one set of files.

Figure 1: PRISMA flow diagram



Included studies were initially listed in MEDLINE between August 14, 2020 and June 30, 2022. They included between 10 and 2,844 studies (median = 52; interquartile range = 24 to 120). Affiliations of the corresponding authors in studies were from China (N = 51; 34%), the United States (N = 27; 18%), the United Kingdom (N = 9; 6%), Canada (N = 8; 5%), and 22 other countries (N = 53; 36%). Most assessed adherence to CONSORT (N = 61; 41%) or PRISMA (N = 59; 40%) or their extensions. The research question was only related to reporting in 46 (31%) studies, the main question was related to reporting and there were multiple other questions not related to reporting in 13 (9%) studies, one of multiple questions with no clear primary question in 65 (44%) studies, and the main question was not related to reporting in 24 (16%) studies. Most studies 103 (70%) came from journals with journal impact factor > 2.9. See Table 1 and Appendix G for individual study characteristics.

Table 1: Study characteristics (N = 148)

Study Characteristics	N (%)
Year Published	
2020	21 (14)
2021	60 (41)
2022	56 (38)
Online only	11 (7)
Country of Corresponding Author Affiliations	
Canada	8 (5)
China	51 (34)
United Kingdom	9 (6)
United States	27 (18)
Other (all with ≤ 5 studies)[a]	53 (36)
Journal Impact Factor[b]	
≤ 2.9	45 (30)
2.9< JIF ≤4.9	55 (37)
> 4.9	48 (32)
Included Study Eligibility Criteria[c]	
Study design	137 (93)

Patient population	68 (46)
Intervention type	65 (44)
Journal	17 (11)
Included in specified guidelines	13 (9)
Field of research	13 (9)
Other[d]	6 (4)
Research Question	
Only research question related to reporting	46 (31)
Main question related to reporting among multiple research questions	13 (9)
Multiple research questions with main question unclear	65 (44)
Main research question not related to reporting	24 (16)
Reporting Guideline[e]	
CONSORT	61 (41)
PRISMA	59 (40)
STARD	10 (7)
STROBE	18 (12)
Number of Included Publications Reviewed	
≤ 50	72 (49)
>50	76 (51)

CONSORT = Consolidated Standards of Reporting Trials; PRISMA = Preferred Reporting Items for Systematic Reviews and Meta-Analyses; STARD = Standards for the Reporting of Diagnostic Accuracy Studies; STROBE = Strengthening the Reporting of Observational Studies in Epidemiology

[a]Australia (3); Brazil (3); Chile (1); Croatia (1); France (3); Germany (4); Greece (2); India (3); Iran (2); Ireland (2); Italy (3); Korea (4); Macao (2); Mexico (1); Portugal (1); Qatar (2); Saudi Arabia (2); South Africa (1); South Korea (4); Spain (3); Switzerland (1); the Netherlands (5). [b]Journals for which we could not find a journal impact factor were coded as 0. [c]Included reviews could be counted in more than one category. [d]Studies reviewed included a specific questionnaire, were on acceptability of a specific intervention, were abstracts submitted to specific conferences, or were studies that used a specific database . [e]Including extensions to specified reporting guidelines.

Of the 148 included studies, 3 (2%, 95% CI 1% to 6%) used 1 rater, 10 (7%, 95% CI 4% to 12%) used 1 rater with validation from a second rater, 113 (76%, 95% CI 69% to 83%) used 2 or more independent raters, 9 (6%, 95% CI 3% to 11%) used 2 or more raters but did not state whether they were independent, 3 (2%, 95% CI 1% to 6%) used other methods, and 10 (7%, 95% CI 4% to 12%) did not report how many raters were used.

For classifying adherence to reporting checklist items, 66 (45%, 95% CI 37% to 53%) classified items dichotomously, 61 (41%, 95% CI 34% to 49%) used a multi-level approach (e.g., “fully reported”, “partially reported”, or “not reported”), 2 (1%, 95% CI 0% to 5%) classified some items dichotomously and others with a multi-level approach, and 19 (13%, 95% CI 8% to 19%) did not report how they classified items. See Appendix H.

3.2 Main Outcomes

Of the 148 studies, 14 (10%, 95% CI 6% to 15%) provided a fully replicable explanation of how they coded the adherence ratings, 5 (3%, 95% CI 2% to 8%) provided a partially replicable explanation, and 129 (87%, 95% CI 81% to 92%) did not provide enough information to know how coding decisions had been made (see Table 2). Forty-nine studies (33%, 95% CI 26% to 41%) completely reported individual study results, 26 (18%, 95% CI 12% to 25%) reported partial results for all studies, 3 (2%, 95% CI 1% to 6%) reported results for some studies but not others, and 70 (47%, 95% CI 39% to 55%) did not provide any individual study results (see Table 3). Only 4 (3%, 95% CI 1% to 7%) studies provided both fully replicable explanations of how they coded the adherence ratings and complete individual study results.

Table 2: Number and percent of studies that provided a fully or partially replicable explanation of how they coded the adherence ratings or did not provide such coding explanations for the overall sample (N = 148) and subgroups

Subgroups	N % (95%CI)		
	Fully Replicable	**Partially Replicable**	**Not Replicable**
All	14 10% (6%, 15%)	5 3% (2%, 8%)	129 87% (81%, 92%)
Country of Corresponding Author Affiliations			
Canada	3 38% (14%, 69%)	2 25% (7%, 59%)	3 38% (14%, 69%)
China	3 6% (2%, 16%)	0 0% (0%, 7%)	48 94% (84%, 98%)
United Kingdom	1 11% (2%, 44%)	1 11% (2%, 44%)	7 78% (45%, 94%)
United States	2 7% (2%, 23%)	0 0% (0%, 13%)	25 93% (77%, 98%)
Other	5 9% (4%, 20%)	2 4% (1%, 13%)	46 87% (75%, 94%)
Journal Impact Factor			
≤ 2.9	1 2% (0%, 12%)	0 0% (0%, 8%)	44 98% (88%, 100%)
2.9 < JIF ≤ 4.9	6 11% (5%, 22%)	3 6% (2%, 15%)	46 84% (72%, 91%)
> 4.9	7 15% (7%, 27%)	2 4% (1%, 14%)	39 81% (68%, 90%)
Reporting Guideline			
CONSORT & extensions	9 15% (8%, 26%)	3 5% (2%, 14%)	49 80% (69%, 88%)
PRISMA & extensions	1 2% (0%, 9%)	1 2% (0%, 9%)	57 97% (89%, 99%)
STARD & extensions	2	1	7

	20% (6%, 51%)	10% (2%, 40%)	70% (40%, 89%)
STROBE & extensions	2	0	16
	11% (3%, 33%)	0% (0%, 18%)	89% (67%, 97%)
Research Question			
The only research question was related to reporting or there are multiple research questions and the main one was related to reporting or not defined	14 11% (7%, 18%)	4 3% (1%, 8%)	106 86% (78%, 91%)
The main research question was not related to reporting	0 0% (0%, 14%)	1 4% (1%, 20%)	23 96% (80%, 99%)

CONSORT = Consolidated Standards of Reporting Trials; PRISMA = Preferred Reporting Items for Systematic Reviews and Meta-Analyses; STARD = Standards for the Reporting of Diagnostic Accuracy Studies; STROBE = Strengthening the Reporting of Observational Studies in Epidemiology

Table 3: Level of reporting of included study results for overall sample (N = 148) and subgroups

Subgroups	N % (95%CI)			
	Completely Reported	**Partially Reported – All Studies**	**Partially Reported – Some Studies**	**Not Reported**
All	49 33 % (26%, 41%)	26 18% (12%, 25%)	3 2% (1%, 6%)	70 47 % (39%, 55%)
Country of Corresponding Author Affiliations				
Canada	2 25% (7%, 59%)	0 0% (0%, 32%)	0 0% (0%, 32%)	6 75% (41%, 93%)
China	26 51% (38%, 64%)	2 4% (1%, 13%)	0 0% (0%, 7%)	23 45% (32%, 59%)
United Kingdom	4 44% (19%, 73%)	2 22% (6%, 55%)	0 0% (0%, 30%)	3 33% (12%, 65%)
United States	3 11% (4%, 28%)	13 48% (31%, 66%)	1 4% (1%, 18%)	10 37% (22%, 56%)
Other	14 26% (16%, 40%)	9 17% (9%, 29%)	2 4% (1% 13%)	28 53% (40%, 66%)
Journal Impact Factor				
≤ 2.9	16 36% (23%, 50%)	9 20% (11%, 34%)	1 2% (0%, 12%)	19 42% (29%, 57%)
2.9 < JIF ≤ 4.9	15 27% (17%, 40%)	12 22% (13%, 34%)	0 0% (0%, 7%)	28 51% (38%, 64%)
> 4.9	18 38% (25%, 52%)	5 10% (5%, 22%)	2 4% (1%, 14%)	23 48% (35%, 62%)
Reporting Guideline				
CONSORT & extensions	14 23% (14%, 35%)	6 10% (5%, 20%)	0 0% (0%, 6%)	41 67% (55%, 78%)
PRISMA & extensions	25 42% (31%, 55%)	15 25% (16%, 38%)	1 2% (0%, 9%)	18 31% (20%, 43%)
STARD & extensions	3	1	1	5

STROBE & extensions	30% (11%, 60%) 7 39% (20%, 61%)	10% (2%, 40%) 4 22% (9%, 45%)	10% (2%, 40%) 1 6% (1%, 26%)	50% (24%, 76%) 6 33% (16%, 56%)
Research Question				
The only research question was related to reporting or there are multiple research questions and the main one was related to reporting or not defined	35 28% (21%, 37%)	22 18% (12%, 25%)	2 2% (0%, 6%)	65 52% (44%, 61%)
The main research question was not related to reporting	14 58% (39%, 76%)	4 17% (7%, 36%)	1 4% (1%, 20%)	5 21% (9%, 41%)

CONSORT = Consolidated Standards of Reporting Trials; PRISMA = Preferred Reporting Items for Systematic Reviews and Meta-Analyses; STARD = Standards for the Reporting of Diagnostic Accuracy Studies; STROBE = Strengthening the Reporting of Observational Studies in Epidemiology

Reporting was mentioned in 122 abstract conclusions, and 90 of these classified reporting as either adequate or inadequate. Of these 90 studies, 6 (7%, 95% CI 3% to 14%) concluded that reporting was adequate, 29 (32%, 95% CI 24% to 42%) implicitly concluded that reporting was inadequate, and 55 (61%, 95% CI 51% to 71%) did so explicitly. Of the 6 studies that concluded that reporting was adequate, none provided any explanation of how items were coded or item-level results for individual studies. The 4 studies with a fully replicable explanation of how they coded the adherence ratings and complete individual study results all concluded that reporting was inadequate (see Table 4). Outcomes for individual meta-research studies are shown in Appendix I.

Table 4: Conclusions in abstracts of included studies on research reporting for overall sample (N = 148) and subgroups

Subgroups	N % (95%CI)					
	Adequate	**Inadequate - Implicit**	**Inadequate - Explicit**	**Mixed**	**Vague**	**No Mention**
All	6 4% (2%, 9%)	29 20% (14%, 27%)	55 37% (30%, 45%)	10 7% (4%, 12%)	22 15% (10%, 22%)	26 18% (12%, 25%)
Country of Corresponding Author Affiliations						
Canada	0 0% (0%, 32%)	0 0% (0%, 32%)	2 25% (7%, 59%)	1 13% (2%, 47%)	3 38% (14%, 69%)	2 25% (7%, 59%)
China	1 2% (0%, 10%)	15 29% (19%, 43%)	21 41% (29%, 55%)	0 0% (0%, 7%)	6 12% (6%, 23%)	8 16% (8%, 28%)
United Kingdom	0 0% (0%, 30%)	2 22% (6%, 55%)	3 33% (12%, 65%)	1 11% (2%, 44%)	1 11% (2%, 44%)	2 22% (6%, 55%)
United States	1 4% (1%, 18%)	2 7% (2%, 23%)	12 44% (28%, 63%)	4 15% (6%, 33%)	4 15% (6%, 33%)	4 15% (6%, 33%)
Other	4 8% (3%, 18%)	10 19% (11%, 31%)	17 32% (21%, 46%)	4 8% (3%, 18%)	8 15% (8%, 27%)	10 19% (11%, 31%)
Journal Impact Factor						
≤ 2.9	2 4% (1%, 15%)	19 42% (29%, 57%)	9 20% (11%, 34%)	4 9% (4%, 21%)	7 16% (8%, 29%)	4 9% (4%, 21%)
2.9 < JIF ≤4.9	2 4% (1%, 12%)	17 31% (20%, 44%)	11 20% (12%, 32%)	6 11% (5%, 22%)	6 11% (5%, 22%)	13 24% (14%, 36%)
> 4.9	2 4% (1%, 14%)	19 40% (27%, 54%)	9 19% (10%, 32%)	0 0% (0%, 7%)	9 19% (10%, 32%)	9 19% (10%, 32%)
Reporting Guidelines						
CONSORT & extensions	3 5% (2%, 14%)	12 20% (12%, 31%)	29 48% (36%, 60%)	3 5% (2%, 14%)	9 15% (8%, 26%)	5 8% (4%, 18%)
PRISMA & extensions	1 2% (0%, 9%)	15 25% (16%, 38%)	16 27% (17%, 40%)	7 12% (6%, 23%)	11 19% (11%, 30%)	9 15% (8%, 27%)

STARD & extensions	0 0% (0%, 28%)	2 20% (6%, 51%)	4 40% (17%, 69%)	0 0% (0%, 28%)	2 20% (6%, 51%)	2 20% (6%, 51%)
STROBE & extensions	2 11% (3%, 33%)	0 0% (0%, 18%)	6 33% (16%, 56%)	0 0% (0%, 18%)	0 0% (0%, 18%)	10 56% (34%, 75%)
Research Question						
The only research question was related to reporting or there are multiple research questions and the main one was not related to reporting or not defined	6 5% (2%, 10%)	54 44% (35%, 52%)	25 20% (14%, 28%)	10 8% (4%, 14%)	20 16% (11%, 24%)	9 7% (4%, 13%)
The main research question was not related to reporting	0 0% (0%, 14%)	1 4% (1%, 20%)	4 17% (7%, 36%)	0 0% (0%, 14%)	2 8% (2%, 26%)	17 71% (51%, 85%)

CONSORT = Consolidated Standards of Reporting Trials; PRISMA = Preferred Reporting Items for Systematic Reviews and Meta-Analyses; STARD = Standards for the Reporting of Diagnostic Accuracy Studies; STROBE = Strengthening the Reporting of Observational Studies in Epidemiology

As shown in Tables 2, 3 and 4, most subgroup results did not differ substantively from overall conclusions, excluding subgroups with very small numbers of meta-research studies (e.g., < 10 studies). One exception was among 124 studies where the main research question was related to reporting. Thirty-five studies (28%, 95% CI 21% to 37%) completely reported individual study results, compared to 14 of 24 studies (58%, 95% CI 39% to 76%) where the main research question was not related to reporting.

4. DISCUSSION

We examined 148 health research studies that evaluated reporting guideline adherence. Of these, only 10% provided enough information on how individual checklist items were rated, and 33% reported results for all studies evaluated. We did not identify any substantive differences by subgroups. Of 90 studies that classified reporting as adequate or inadequate in their abstracts, 7% concluded that reporting was adequate; however, none of these studies provided an explanation of how they coded items or provided item-level results for individual studies. Only 3% of included meta-research studies provided both a fully replicable explanation of how they coded the adherence ratings and complete individual study results, and all of those studies concluded that reporting was inadequate.

No previous studies have examined the degree that meta-research studies on reporting guideline adherence adequately report key aspects of their own studies. Given that meta-research is done to scrutinize research methodology,[25] some might assume that these studies are rigorously conducted and reported. However, there are no consensus standards for conducting and reporting these studies. Our study shows that most meta-research studies find that reporting in health research is suboptimal, but few of these studies themselves reported enough information for verification or replication.

Good research asks important questions and uses methods that allow us to be confident in its conclusions.[26] Researchers considering initiating a study on adherence to reporting guidelines and editors who must decide whether to publish such studies should be able to clearly articulate how the studies might add to what is known about the state of research reporting. Evaluating reporting to understand the influence of new or updated reporting guidelines or to assess the effects of interventions designed to improve reporting would likely be justified. Simply documenting poor reporting guideline adherence in yet one more sub-specialty area, however, would likely not be useful.

Authors of any studies that evaluate reporting should clearly describe how reporting was evaluated and should provide study-level information so others can evaluate and validate findings. Reporting guidelines for meta-research studies do not exist, but a protocol for such guidelines has been published.[14] The authors of these proposed guidelines should ensure that meta-research studies on reporting, in addition to other important items, address the reporting gaps we have identified here.

To date, the only reporting guideline with a standardised tool to facilitate evaluation of reporting completeness is the Transparent Reporting of a multivariable prediction model for Individual Prognosis Or Diagnosis statement.[27] Such assessment forms are necessary to ensure that adherence is evaluated in a consistent manner and can be replicated.[28] Similar forms would ideally be developed for other reporting guidelines. Meanwhile, researchers who do evaluate reporting can refer to examples of studies that we reviewed that provided fully replicable explanations of how they rated adherence and reporting of individual study results.[G23,G100,G111,G112] In each of those studies, for each reporting guideline item, the researchers delineated precise definitions of the information required for different ratings.

Rather than additional studies on the poor quality of health research reporting, interventions are needed to help researchers, peer reviewers, and journal editors improve reporting. A 2019 scoping review identified 31 interventions created to improve reporting guideline adherence, but only 11 had been evaluated in any way.[29] Strategies varied on what step of the writing or publishing process they targeted, but most aimed to improve adherence at the journal level, such as editorial endorsement of specific reporting guidelines, or requiring authors to submit a completed reporting checklist. The scoping review found 4 randomised trials of interventions to enhance adherence; the only one that showed a statistically significant effect on reporting was the Consort-based WEB (COBWEB) tool, which supports adherence at the manuscript writing stage.[30] The tool divides CONSORT items into bullet points and emphasizes key reporting elements that need to be reported for the main CONSORT checklist and selected extensions.[30] In the trial of the COBWEB tool, which included 41 participants, the global score for completeness of reporting (0-10 scale) was 2.1 points higher (95% CI 1.5 to 2.7) in 123 CONSORT domains drafted with the tool compared to 123 domains drafted without using the tool.[30] Another intervention, published after the search period of the scoping review, in which a journal required authors to incorporate section headings that reflected CONSORT items into their manuscripts, also improved reporting.[31] Overall, however, there are few interventions that have been tested in randomised trials and found to be effective, and there is only limited evidence on interventions that have been tested.[29] Resources should be allocated to developing, testing, and disseminating effective interventions that address different aspects of the complex factors that contribute to how well research is reported.[29]

4.1 Strengths and Limitations

Strengths of our study include that we developed and posted a protocol prior to initiating the study, we have provided all coding manuals and individual study results in supplementary materials, and we included a large sample size of the most recently published studies based on an a priori power analysis.

There are some limitations that also need to be considered. First, we only searched MEDLINE and used a pragmatic search strategy; this could have led us to miss potentially eligible studies, though it is unlikely that health research studies in other databases or that were less clearly identified as studies on reporting would have been more completely reported. Second, we included meta-research studies that assessed adherence to 4 reporting guidelines listed in the EQUATOR website based on how often they have been cited, but we did not assess others. We do not believe that including other reporting guidelines would have influenced results substantively considering that we assessed reporting in the meta-research studies themselves and not reporting levels of studies that used those reporting guidelines.

5. CONCLUSIONS

We found that out of the 148 studies we assessed, 10% provided a fully replicable explanation of how they coded the adherence ratings, 33% completely reported individual study results, and 7% of those that categorized reporting as being adequate or inadequate concluded that adherence to reporting guidelines was adequate, though none of the studies that rated reporting as adequate were themselves well reported. Meta-research is done to reduce research waste by improving how research is performed, communicated, and used,[25] but our study shows that meta-research on reporting may be a significant contributor to waste. Most recent studies on reporting guideline adherence do not appear to have added meaningfully to what we know about the problem of research reporting. Poor reporting of key elements in most of these studies does

not allow for conclusions beyond that overall reporting continues to be sub-optimal or provide an understanding of how to address the most salient reporting gaps. New studies on adherence should only be conducted if there is a specific and justified rationale to address a well-defined, non-redundant research question. Rather than more research on poor reporting in another sub-specialty area, research is needed that develops effective interventions to improve reporting, tests them in randomised trials, and disseminates them via support and training tools.

Contributions: TDS, DBR, MCG, AB, and BDT were responsible for the study conception and design. JTB and BDT were responsible for the design of the database search. KL carried out the search. TDS, LSNA, AT, and BDT, contributed to data extraction, coding, and evaluation of included studies. TDS conducted the analyses. TDS drafted the manuscript, and DBR, LSNA, AT, KL, JTB, MCG, AB, and BDT provided critical review and approved the final manuscript.

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Declaration of Competing Interests: All authors have completed the ICJME uniform disclosure form at www.icmje.org/coi_disclosure.pdf and declare: no support from any organisation for the submitted work; no financial relationships with any organisations that might have an interest in the submitted work in the previous three years. All authors declare no relationships or activities that could appear to have influenced the submitted work. No funder had any role in the design and conduct of the study; collection, management, analysis, and interpretation of the data; preparation, review, or approval of the manuscript; and decision to submit the manuscript for publication. DBR and BDT declared that they were named or group authors of 3 included studies[G100,G111,G112] conducted to benchmark reporting prior to publishing a new reporting guideline.

Data Statement: All data extracted from included studies and used in our study are available in the manuscript and its tables or appendices. Additionally, a raw data file is available on the Open Science Framework (https://osf.io/gtm4z/).

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Appendix A: PRISMA search report

Information sources and methods

Database name: MEDLINE(ALL) via Ovid

Multi-database searching: N/A

Study registries searched: N/A

Online resources and browsing: N/A

Cited referencing used; browsing reference lists, using a citation index, setting up email alerts for references citing included studies: N/A

Additional studies or data sought by contacting authors, experts, manufacturers, or others: We contacted two sets of authors and journal editors to attempt to obtain supplemental material that was described in articles but not available on journal websites. One provided this information, and the other did not respond.

Other methods: N/A

Search strategies

Full search strategy:

1 ((quality or complete* or adequat* or transparen*) adj3 reporting).tw,kf.
2 (CONSORT* or PRISMA* or STROBE* or STARD* or "Standards for Reporting Diagnostic accuracy studies" or "Strengthening the Reporting of Observational Studies in Epidemiology" or "Preferred Reporting Items for Systematic Reviews" or "Consolidated Standards of Reporting Trials").tw,kf.
3 1 and 2

Limits and restrictions: None

Search filters: None

Prior work (citation): None

Updates: This search was run once, and was not updated throughout the study
Date of search: July 5, 2022

Peer review

Peer review: None

Managing records

Total records:

Ovid MEDLINE(R) ALL <1946 to May 16, 2022>

1 ((quality or complete* or adequat* or transparen*) adj3 reporting).tw,kf. 9895
2 (CONSORT* or PRISMA* or STROBE* or STARD* or SPIRIT* or "Standards for Reporting Diagnostic accuracy studies" or "Standard Protocol Items Recommendations for Interventional Trials" or "Strengthening the Reporting of Observational Studies in Epidemiology" or "Preferred Reporting Items for Systematic Reviews" or "Consolidated Standards of Reporting Trials").tw,kf. 106838
3 1 and 2 1701

Deduplication: Distiller SR

Appendix B: Title and Abstract and Full-text Coding Guides

TITLE AND ABSTRACT INCLUSION AND EXCLUSION CRITERIA CODING GUIDE:

No: no use of eligible reporting guideline. Exclude if the title or abstract of the article does not mention a version of any eligible reporting guideline (CONSORT, PRISMA, STARD, STROBE), or any eligible extension (e.g., CONSORT-ROUTINE, PRISMA-DTA, STROBE-MR).

No: no evaluation of adherence to eligible reporting guideline in human health research. Exclude if it is clear from the title or abstract that the article does not evaluate reporting guideline adherence in a human health research publication.

No: evaluates single or small set of studies. Exclude if it is clear from the title or abstract that the article evaluates only a single study or small (< 10) set of studies.

No: evaluates fewer than half of reporting items. Exclude if it is clear from the title or abstract that the article evaluates fewer than half of the items in an eligible checklist.

No: evaluates a modified version of an eligible reporting guideline. Exclude if it is clear from the title or abstract that the article evaluates a reporting guideline that has been modified.

Yes: study eligible for inclusion in full-text review.

FULL-TEXT INCLUSION AND EXCLUSION CRITERIA CODING GUIDE:

No: no use of eligible reporting guideline. Exclude if the article does not mention a version of any eligible reporting guideline (CONSORT, PRISMA, STARD, STROBE), or any eligible extension (e.g., CONSORT-ROUTINE, PRISMA-DTA, STROBE-MR).

No: no evaluation of adherence to eligible reporting guideline in human health research. Exclude if the article does not evaluate reporting guideline adherence in a human health research publication. Exclude if not all included studies are in human health research.

No: evaluates single or small set of studies. Exclude if the article evaluates only a single study or small (< 10) set of studies.

No: evaluates fewer than half of reporting items. Exclude if the article evaluates fewer than half of the items in an eligible checklist.

No: evaluates a modified version of an eligible reporting guideline. Exclude if the article evaluates a reporting guideline that has been modified.

Yes: study eligible for inclusion in the meta-research study.

Appendix C: Data Extraction Form

1) First Author, Last Name [textbox]

2) Year Published [dropdown]

- Online only
- 2022
- 2021
- 2020
- 2019
- 2018
- 2017

3) Full Journal Name [textbox]

4) 2021 Journal Impact Factor (To be extracted post hoc) [note]

5) Country of Corresponding Author [textbox]

Note: Don't use abbreviations

6) Research Question [dropdown]

- Reporting is the only research question (including factors associated with reporting)

o Reporting is the main research question (including factors associated with reporting) and there are other non-reporting questions

o There are multiple research questions, including reporting and non-reporting questions, and the main one is unclear

o The main research question is not reporting, but an eligible reporting analysis is conducted

7) Number of Eligible Reporting Guidelines Used in Assessment of Included Studies

[textbox]

Note: Versions that differ by year count as the same guideline; extensions count as separate guidelines. All versions should be counted separately.

Example: If a study includes PRISMA 2009 and PRISMA 2020, enter "1"

Example: If a study includes CONSORT 2010 and CONSORT Harms, enter "2"

Example: If a study only includes CONSORT Harm items, enter "1"

8) Name of Eligible Reporting Guidelines Used in Assessment of Included Studies [textbox]

Note: Use acronyms and specify year and extension (if any)

9) Name of Non-Eligible Reporting Guidelines Used in Assessment of Included Studies

[textbox]

Note: Use acronyms and specify year and extension (if any) – Enter "N/A" if not applicable

10) Number of Publications Evaluated for Reporting [textbox]

Note: Indicate the number of publications included for both eligible and ineligible reporting guidelines.

11) Description of Main Eligibility Criteria of Included Studies [checkbox]

Note: Can check more than one

- By reporting guideline (e.g., any study that mentions adhering to the PRISMA statement)
- By study design (e.g., RCTs, diagnostic test accuracy studies)
- By field of research (e.g., any study in rheumatology or dentistry)
- By patient population (e.g., people with scleroderma)
- By journal (e.g., all studies published in BMJ or a set of journals such as BMJ, JAMA, and NEJM)
- Other (Only include something that could potentially be used as a single eligibility criteria)
- By intervention type

12) Rating Method Used [dropdown]

Note: Do not consider "not applicable" as a rating option

- Dichotomous (e.g., yes/no)
- Multi-level (e.g., fully/partially/not reported)
- Other (Provide a brief description of rating method) [additional textbox]
- Not reported

13) How many raters evaluated adherence to reporting guidelines? [dropdown]

- 1 rater
- 1 rater with validation of all ratings from a second rater
- 1 rater with validation of some but not all ratings from a second rater
- 2 or more independent raters
    - Did they report concurrence between raters? If yes, provide a description of how agreement between raters was reported and result [additional textbox]
- 2 or more raters (independence not stated)
- Other [textbox]
- Not reported

14) Did the authors provide an adequate coding explanation? [dropdown/radio]

Coding Guide for Provision of an Adequate Coding Explanation

Fully Replicable: The authors provided a detailed description of what aspects needed to be present for each item and sub-item and explained how the presence or absence of these aspects led to the item rating (e.g., yes/no or fully/partially/not reported).

Example[C1-3] using Item 6a of the CONSORT 2010 Checklist[C4]: Completely defined pre-specified primary and secondary outcome measures, including how and when they were assessed

> *Fully: The authors clearly define the pre-specified primary and secondary outcome measures, including how and when they were assessed.*

Partially: The authors only define the pre-specified primary and secondary outcome measures but not how and when they were assessed or they describe how and when outcomes were assessed but not the measures.

Not reported: The authors do not define the pre-specified primary and secondary outcome measures and do not define how and when they were assessed.

Partially Replicable: The authors provided some detail regarding the aspects that needed to be present for each item and sub-item but did not provide enough information to replicate.

Example

Yes: The authors describe most components of each item needed to be present.

No: The authors do not describe the necessary components of each item.

Not Replicable: The authors did not provide any explanation regarding how they rated reporting of each item.

- Fully replicable
- Partially replicable
- Not replicable

15) Level of Reporting of Included Study Results [dropdown/radio]

Note: If either of the "partially reported" options is chosen, provide details on level of reporting in the textbox, or reasoning behind why only some study outcomes were reported and others not.

Example (Partially Reported – All Studies): Authors reported % CONSORT criteria of reporting quality fulfilled for each study.

Example (Partially Reported – Some Studies): Authors only reported complete outcomes for studies that adhered to at least half of reporting items.

Coding Guide for Assessing Reporting of Included Study Results

Completely Reported: The authors provided ratings for each item from each individual study.

Partially Reported – All Studies: The authors provided some form of rating for each study but did not provide item-by-item results. This might include cases where the authors reported (1) a summary of the ratings for each individual study (e.g., 4/30 “yes” and 26/30 items “no") or (2) a summary for each individual study and item-by-item ratings for some items only.

Partially Reported – Some Studies: The authors reported ratings completely for some studies, but results for other studies were not reported or are partially reported.

Not Reported: The authors did not provide any results for individual studies.

- Completely reported
- Partially reported – All studies (Provide details on level of reporting) [additional textbox]
- Partially reported - Some studies (Provide explanation as to why some studies were reported and others not) [additional textbox]

- Not reported

16) Publication Conclusion [dropdown]

Coding Guide for Extracting Conclusions from Abstracts

Adequate: In the abstract conclusion, the authors state that overall adherence to reporting guidelines is at an adequate level.

Inadequate – Implicit: In the abstract conclusion, the authors state a recommendation that implies some degree of inadequacy, but there is no clear statement on the overall degree of adherence to reporting guidelines.

Example:

(1) Completeness of reporting with respect to the PRISMA-DTA and PRISMA-DTA for Abstracts has improved modestly since the publication of the PRISMA-DTA guideline; however, increasing awareness of the specific weakness provides the chance for completeness improvement.

Inadequate – Explicit: In the abstract conclusion, the authors state that overall adherence to reporting guidelines is inadequate.

Examples:

(1) How administrative data are used in trials is often sub-optimally reported. CONSORT-ROUTINE uptake may improve reporting.

(2) *Reporting of trials using registries was often poor, particularly details on data linkage and quality. Better reporting is needed for appropriate interpretation of the results of these trials.*

(3) *We found that the completeness of PRO reporting in RCTs involving AUD was deficient.*

(4) *The reporting quality of abstracts of RCTs presented at international cardiothoracic conferences is poor when benchmarked against the CONSORT-A standards.*

Mixed: In the abstract conclusion, the authors state that overall adherence to reporting guidelines is mixed.

Examples:

(1) *The reporting quality of SRs that underpin CPGs in breast cancer management widely varies.*

(2) *The quality of reporting of published massage RCTs is variable and in need of improvement.*

Vague: In the abstract conclusion, it is difficult to ascertain what the conclusion is regarding overall adherence to reporting guidelines. This might occur, for example, if the conclusion only comments on a small set of items.

Example:

(1) *Reporting quality of clinical studies had deficits in trial design-, recruitment-, allocation-, and outcome-related aspects.*

No Mention: In the abstract conclusion, there is no mention of adherence to reporting guidelines.

- Adequate
- Inadequate-Implicit
- Inadequate-Explicit
- Mixed
- Vague
- No mention

17) Notes [textbox]

REFERENCES: Appendix C

C1. Imran M, Mc Cord KA, McCall SJ, et al. Reporting transparency and completeness in trials: paper 3 – trials conducted using administrative databases do not adequately report elements related to use of databases. *J Clin Epidemiol* 2022;141:187-197. doi:10.1016/j.jclinepi.2021.09.010

C2. McCall SJ, Imran M, Hemkens LG, et al. Reporting transparency and completeness in trials: paper 4 – reporting of randomised controlled trials conducted using routinely collected electronic records – room for improvement. *J Clin Epidemiol* 2022;141:198-209. doi:10.1016/j.jclinepi.2021.09.011

C3. McCord KA, Imran M, Rice DB, et al. Reporting transparency and completeness in trials: Paper 2 – reporting of randomised trials using registries was often inadequate and hindered the interpretation of results. *J Clin Epidemiol* 2022;141:175-186. doi:10.1016/j.jclinepi.2021.09.012

C4. Schulz KF, Altman DG, Moher D, et al. CONSORT 2010 statement: updated guidelines for reporting parallel group randomised trials. *BMJ* 2010;340:c332. doi:https://doi.org/10.1186/1741-7015-8-18

Appendix D: Coding Guide for Provision of an Adequate Coding Explanation

Fully Replicable: The authors provided a detailed description of what aspects needed to be present for each item and sub-item and explained how the presence or absence of these aspects led to the item rating (e.g., yes/no or fully/partially/not reported).

Example[D1-3] using Item 6a of the CONSORT 2010 Checklist[D4]: Completely defined pre-specified primary and secondary outcome measures, including how and when they were assessed

> Fully: The authors clearly define the pre-specified primary and secondary outcome measures, including how and when they were assessed.
>
> Partially: The authors only define the pre-specified primary and secondary outcome measures but not how and when they were assessed or they describe how and when outcomes were assessed but not the measures.
>
> Not reported: The authors do not define the pre-specified primary and secondary outcome measures and do not define how and when they were assessed.

Partially Replicable: The authors provided some detail regarding the aspects that needed to be present for each item and sub-item but did not provide enough information to replicate.

Example

> Yes: The authors describe most components of each item needed to be present.
>
> No: The authors do not describe the necessary components of each item.

Not Replicable: The authors did not provide any explanation regarding how they rated reporting of each item.

REFERENCES: Appendix D

D1. Imran M, Mc Cord KA, McCall SJ, et al. Reporting transparency and completeness in trials: paper 3 – trials conducted using administrative databases do not adequately report elements related to use of databases. *J Clin Epidemiol* 2022;141:187-197. doi:10.1016/j.jclinepi.2021.09.010

D2. McCall SJ, Imran M, Hemkens LG, et al. Reporting transparency and completeness in trials: paper 4 – reporting of randomised controlled trials conducted using routinely collected electronic records – room for improvement. *J Clin Epidemiol* 2022;141:198-209. doi:10.1016/j.jclinepi.2021.09.011

D3. McCord KA, Imran M, Rice DB, et al. Reporting transparency and completeness in trials: Paper 2 – reporting of randomised trials using registries was often inadequate and hindered the interpretation of results. *J Clin Epidemiol* 2022;141:175-186. doi:10.1016/j.jclinepi.2021.09.012

D4. Schulz KF, Altman DG, Moher D, et al. CONSORT 2010 statement: updated guidelines for reporting parallel group randomised trials. *BMJ* 2010;340:c332. Doi: https://doi.org/10.1186/1741-7015-8-18

Appendix E: Coding Guide for Assessing Reporting of Included Study Results

Completely Reported: The authors provided ratings for each item from each individual study.

Partially Reported – All Studies: The authors provided some form of rating for each study, but did not provide item-by-item results. This might include cases where the authors reported (1) a summary of the ratings for each individual study (e.g. 4/30 “yes” and 26/30 items “no") or (2) a summary for each individual study and item-by-item ratings for some items only.

Partially Reported – Some Studies: The authors reported ratings completely for some studies, but results for other studies were not reported or are partially reported.

Not Reported: The authors did not provide any results for individual studies.

Appendix F. References and reasons for exclusion for studies excluded at the full-text level

Study	Reason for Exclusion
Shukralla[F1]	No use of eligible reporting guideline
Li[F2]	No evaluation of adherence to eligible reporting guideline in health research
Cooper[F3]	No evaluation of adherence to eligible reporting guideline in health research
Chardborn[F4]	No evaluation of adherence to eligible reporting guideline in health research
Bai[F5]	No evaluation of adherence to eligible reporting guideline in health research
Bollig[F6]	No evaluation of adherence to eligible reporting guideline in health research
Jayaraman[F7]	No evaluation of adherence to eligible reporting guideline in health research
Shamsoddin[F8]	No evaluation of adherence to eligible reporting guideline in health research
Giovannoni[F9]	No evaluation of adherence to eligible reporting guideline in health research
Cooper[F10]	No evaluation of adherence to eligible reporting guideline in health research
Safa[F11]	No evaluation of adherence to eligible reporting guideline in health research
Zhou[F12]	No evaluation of adherence to eligible reporting guideline in health research
Elliott[F13]	No evaluation of adherence to eligible reporting guideline in health research
Mifsud[F14]	No evaluation of adherence to eligible reporting guideline in health research
Asensio[F15]	No evaluation of adherence to eligible reporting guideline in health research
Bayramzadeh[F16]	No evaluation of adherence to eligible reporting guideline in health research
Jones[F17]	No evaluation of adherence to eligible reporting guideline in health research
O'Donohoe[F18]	No evaluation of adherence to eligible reporting guideline in health research
Nagendrababu[F19]	No evaluation of adherence to eligible reporting guideline in health research
Soubieux[F20]	No evaluation of adherence to eligible reporting guideline in health research
Kilicoglu[F21]	No evaluation of adherence to eligible reporting guideline in health research
Mansourian[F22]	No evaluation of adherence to eligible reporting guideline in health research

Hohlfeld[F23]	No evaluation of adherence to eligible reporting guideline in health research
Ng'etich[F24]	No evaluation of adherence to eligible reporting guideline in health research
Jones[F25]	No evaluation of adherence to eligible reporting guideline in health research
Kean[F26]	No evaluation of adherence to eligible reporting guideline in health research
Alroudhan[F27]	No evaluation of adherence to eligible reporting guideline in health research
Platt[F28]	No evaluation of adherence to eligible reporting guideline in health research
Dell'Oglio[F29]	No evaluation of adherence to eligible reporting guideline in health research
Hoffmann[F30]	No evaluation of adherence to eligible reporting guideline in health research
Bayramzadeh[F31]	No evaluation of adherence to eligible reporting guideline in health research
De Pretto-Lazarova[F32]	No evaluation of adherence to eligible reporting guideline in health research
Ibrahim[F33]	No evaluation of adherence to eligible reporting guideline in health research
Verma[F34]	No evaluation of adherence to eligible reporting guideline in health research
Powell[F35]	No evaluation of adherence to eligible reporting guideline in health research
de Jong[F36]	No evaluation of adherence to eligible reporting guideline in health research
Li[F37]	No evaluation of adherence to eligible reporting guideline in health research
Doulaveris[F38]	No evaluation of adherence to eligible reporting guideline in health research
Shlobin[F39]	No evaluation of adherence to eligible reporting guideline in health research
Levin[F40]	No evaluation of adherence to eligible reporting guideline in health research
Philip[F41]	No evaluation of adherence to eligible reporting guideline in health research
Efficace[F42]	No evaluation of adherence to eligible reporting guideline in health research
Oliveira[F43]	No evaluation of adherence to eligible reporting guideline in health research
Zhang[F44]	No evaluation of adherence to eligible reporting guideline in health research
Squires[F45]	No evaluation of adherence to eligible reporting guideline in health research

You[F46]	No evaluation of adherence to eligible reporting guideline in health research
Feng[F47]	No evaluation of adherence to eligible reporting guideline in health research
Carr[F48]	No evaluation of adherence to eligible reporting guideline in health research
Shi[F49]	No evaluation of adherence to eligible reporting guideline in health research
Haller[F50]	No evaluation of adherence to eligible reporting guideline in health research
Zhou[F51]	No evaluation of adherence to eligible reporting guideline in health research
Kearney[F52]	No evaluation of adherence to eligible reporting guideline in health research
Wong[F53]	No evaluation of adherence to eligible reporting guideline in health research
Luo[F54]	No evaluation of adherence to eligible reporting guideline in health research
DeLuca[F55]	No evaluation of adherence to eligible reporting guideline in health research
Rahimi[F56]	No evaluation of adherence to eligible reporting guideline in health research
Abdelkarem[F57]	No evaluation of adherence to eligible reporting guideline in health research
Mauricio[F58]	No evaluation of adherence to eligible reporting guideline in health research
Chejor[F59]	No evaluation of adherence to eligible reporting guideline in health research
Michaelis[F60]	No evaluation of adherence to eligible reporting guideline in health research
Peck[F61]	No evaluation of adherence to eligible reporting guideline in health research
Sabol[F62]	Evaluates single or small sets of studies
Yang[F63]	Evaluates single or small sets of studies
Pan[F64]	Evaluates single or small sets of studies
Chen[F65]	Evaluates single or small sets of studies
Moreno[F66]	Evaluates single or small sets of studies
Pelly[F67]	Evaluates single or small sets of studies
Buryk-Iggers[F68]	Evaluates single or small sets of studies
Cook[F69]	Evaluates fewer than half of reporting items
Chan[F70]	Evaluates fewer than half of reporting items
Tikka[F71]	Evaluates fewer than half of reporting items
Xie[F72]	Evaluates fewer than half of reporting items
Mihailidis[F73]	Evaluates fewer than half of reporting items
Giuffrida[F74]	Evaluates fewer than half of reporting items

Staggs[F75]	Evaluates fewer than half of reporting items
Pellat[F76]	Evaluates fewer than half of reporting items
Minley[F77]	Evaluates fewer than half of reporting items
Zachariah[F78]	Evaluates a modified version of an eligible reporting guideline
Chakraborty[F79]	Evaluates a modified version of an eligible reporting guideline
Wei[F80]	Evaluates a modified version of an eligible reporting guideline
Mihailidis[F81]	Evaluates a modified version of an eligible reporting guideline
Zhang[F82]	Evaluates a modified version of an eligible reporting guideline
Komorowski[F83]	Evaluates a modified version of an eligible reporting guideline
Pagkalidou[F84]	Evaluates a modified version of an eligible reporting guideline
Konn[F85]	Evaluates a modified version of an eligible reporting guideline
Woolf[F86]	Evaluates a modified version of an eligible reporting guideline
Cuijpers[F87]	Evaluates a modified version of an eligible reporting guideline
Lee[F88]	Evaluates a modified version of an eligible reporting guideline

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Appendix G: Characteristics of Included Studies

First Author	Year [a]	Journal	Journal Impact Factor (JIF)	Country of Corresponding Author Affiliation	Research Question	Number of Eligible Reporting Guidelines	Name of Eligible Reporting Guidelines	Number of Publications	Eligibility Criteria of Included Studies						
									Study Design	Field of Research	Patient Population	Journal	Intervention Type	Included in specified guidelines	Other
Alharbi[G1]	2020	Contemporary Clinical Trials Communications	No JIF	Saudi Arabia	Reporting only	1	CONSORT-A	177	✓			✓			
Candela[G2]	2020	International Journal of Environmental Research and Public Health	4.6	Italy	Main reporting	1	CONSORT	183	✓		✓				
Dai[G3]	2020	BMC Medical Research Methodology	4.6	China	Reporting only	1	STROBE	165	✓						
Duan[G4]	2020	BMC Complementary Medicine and Therapies	2.8	China	Main unclear	1	STROBE	199	✓				✓		
Gore[G5]	2020	Journal of Chronic Obstructive Pulmonary Disease	2.1	United States	Main not reporting	1	STROBE	12	✓		✓				
Gundogan[G6]	2020	JAAD International	No JIF	United Kingdom	Reporting only	1	PRISMA	166	✓	✓		✓			
Hogan[G7]	2020	American Journal of Clinical Pathology	5.4	United States	Reporting only	1	STARD	171	✓	✓					
Hou[G8]	2020	Evidence-Based Complementary and Alternative Medicine	2.7	China	Main unclear	1	PRISMA	11	✓		✓		✓		
Huang[G9]	2020	Frontiers in Aging Neuroscience	5.7	China	Main unclear	1	PRISMA	11	✓		✓		✓		

Huang[G10]	2020	Journal of Pain Research	2.8	China	Main unclear	1	PRISMA	19	✓	✓	✓
Li[G11]	2020	Evidence-Based Complementary and Alternative Medicine	2.7	China	Reporting only	2	CONSORT-CHM	144	✓	✓	✓
Li[G12]	2020	Journal of Dentistry	5.0	China	Reporting only	1	PRISMA-Abstracts	160	✓		✓
Lyu[G13]	2020	Gastroenterology Research and Practice	1.9	China	Main unclear	1	PRISMA	33	✓	✓	
Manouchehri[G14]	2020	Iranian Journal of Nursing and Midwifery Research	No JIF	Iran	Reporting only	1	CONSORT	30	✓	✓	✓
Mazhar[G15]	2020	International Journal of Infectious Diseases	12.1	United Kingdom	Main unclear	1	CONSORT-Harms (Extension items only)	16	✓	✓	✓
Ngah[G16]	2020	Vaccines (Basel)	5.0	South Africa	Reporting only	1	CONSORT	124			✓
Rainkie[G17]	2020	PLoS One	3.8	Qatar	Main unclear	2	PRISMA and PRISMA-P	51	✓	✓	
Suchá[G18]	2020	Radiology: Cardiothoracic Imaging	No JIF	the Netherlands	Main unclear	1	STARD	13	✓	✓	
Tian[G19]	2020	Chinese Medicine	4.5	China	Main unclear	1	PRISMA	97	✓		✓
Zhang[G20]	2020	Chinese Acupuncture & Moxibustion	No JIF	China	Reporting only	2	CONSORT and STRICTA	33	✓	✓	✓
Zhu[G21]	2020	International Immunopharmacology	5.7	China	Main unclear	1	PRISMA	11	✓	✓	✓
Adams[G22]	2021	BMJ Open	3.0	United States	Main unclear	3	CONSORT, CONSORT-NPT,	96	✓	✓	✓

							CONSORT-Harms, and TIDieR							
Adobes Martin[G23]	2021	BMC Medical Research Methodology	4.6	Spain	Reporting only	1	PRISMA-Abstracts	265	✓	✓				
Almeheyawi[G24]	2021	Journal of Foot and Ankle Research	3.1	Saudi Arabia	Main not reporting	1	STROBE	39	✓		✓			
Bachelet[G25]	2021	BMC Medical Research Methodology	4.6	Chile	Main unclear	1	CONSORT	392	✓	✓		✓		
Bae[G26]	2021	Complementary Therapies in Clinical Practice	3.6	South Korea	Reporting only	2	PRISMA and PRISMA-NMA	42	✓				✓	
Barhli[G27]	2021	Critical Reviews in Oncology / Hematology	6.6	France	Reporting only	1	CONSORT-Harms (Extension items only)	46	✓		✓		✓	
Beneki[G28]	2021	Journal of Thrombosis and Thrombolysis	5.2	Greece	Reporting only	1	CONSORT	13	✓		✓		✓	
Berton[G29]	2021	Journal of Clinical Medicine	5.0	Italy	Reporting only	1	CONSORT	79	✓		✓			
Besag[G30]	2021	Journal of Psychopharmacology	4.6	United Kingdom	Main not reporting	1	CONSORT	17	✓		✓		✓	
Bruno[G31]	2021	American Journal of Obstetrics & Gynecology MFM	8.7	United States	Main unclear	1	CONSORT	170	✓			✓		
Burton[G32]	2021	Cochrane Database of Systematic Reviews	12.0	United Kingdom	Main not reporting	1	STARDdem	13	✓		✓			IQCODE had to be used as an informant questionnaire

Canagarajah[G33]	2021	European Archives of Oto-Rhino-Laryngology	3.2	United Kingdom	Reporting only	1	CONSORT	41	✓				✓	
Cao[G34]	2021	Journal of Clinical Epidemiology	7.4	China	Main unclear	1	PRISMA	336	✓					
Chair[G35]	2021	International Journal of Environmental Research and Public Health	4.6	China	Main not reporting	1	STROBE	61	✓		✓			
Cho[G36]	2021	Healthcare (Basel)	3.2	Korea	Reporting only	1	PRISMA	47	✓			✓		
Du[G37]	2021	Thoracic Cancer	3.2	China	Reporting only	1	CONSORT[c]	152	✓		✓		✓	
Duan[G38]	2021	The American Journal of Chinese Medicine	6.0	China	Main unclear	1	STROBE (Cross-sectional studies)	198		✓				
Eliya[G39]	2021	Journal of the American Heart Association	6.1	Canada	Main unclear	1	CONSORT PRO	226	✓		✓			
Escobar-Viera[G40]	2021	Internet Interventions	5.4	United States	Main unclear	2	CONSORT and CONSORT for pilot and feasibility trials	18			✓		✓	
Garnier[G41]	2021	Neuro-Oncology Practice	No JIF	France	Reporting only	1	CONSORT-PRO (Extension items only)	43	✓		✓			
Hu[G42]	2021	Journal of Advanced Nursing	3.1	China	Main not reporting	1	PRISMA	10	✓				✓	
Huang[G43]	2021	Pain Research and Management	2.7	China	Main unclear	1	PRISMA	10	✓		✓		✓	
Jacobsen[G44]	2021	British Journal of Anaesthesia	11.7	United States	Main unclear	1	PRISMA	78	✓					✓

Jamnani[G45]	2021	Medical Journal of the Islamic Republic of Iran	No JIF	Iran	Main not reporting	1	STROBE	28				✓	Studies of willingness to pay and acceptability of cervical cancer prevention
Jumah[G46]	2021	Stroke	10.2	United States	Reporting only	2	PRISMA-IPD	31	✓		✓		
Kennedy[G47]	2021	Haemophilia	4.3	Ireland	Main not reporting	1	STROBE	36	✓		✓		
Kim[G48]	2021	Harm Reduction Journal	4.8	United States	Main unclear	1	PRISMA	20	✓			✓	
Knippschild[G49]	2021	BMJ Open	3.0	Germany	Reporting only	1	CONSORT-A	212	✓	✓			
Kshirsagar[G50]	2021	Journal of Oral and Maxillofacial Surgery	2.1	India	Reporting only	2	CONSORT and CONSORT-A	80	✓		✓		
Li[G51]	2021	Annals of Palliative Medicine	1.9	China	Main unclear	1	PRISMA	12	✓		✓	✓	
Li[G52]	2021	Evidence-Based Complementary and Alternative Medicine	2.7	China	Main unclear	1	CONSORT	39	✓			✓	
Li[G53]	2021	Expert Review of Molecular Diagnostics	5.7	China	Main not reporting	2	PRISMA-DTA	14	✓		✓		
Li[G54]	2021	Journal of Clinical Epidemiology	7.4	China	Main unclear	1	PRISMA[c]	243	✓				
Liang[G55]	2021	Chinese Medicine	4.5	Macao	Main unclear	2	CONSORT-CHM	53	✓		✓	✓	
Liu[G56]	2021	Journal of Pain Research	2.8	China	Reporting only	2	CONSORT and STRICTA	31	✓			✓	

Liu[G57]	2021	Obesity Reviews	10.9	China	Reporting only	2	CONSORT and CONSORT-NPT	102	✓				✓
Lu[G58]	2021	Phytomedicine	6.7	China	Main unclear	1	PRISMA	19	✓				✓
Malone[G59]	2021	Cancer Medicine	4.7	Canada	Reporting only	2	CONSORT and CONSORT-PRO	33	✓				✓
McGrath[G60]	2021	Journal of Pediatric Urology	1.9	Canada	Reporting only	1	CONSORT extension checklist for pilot studies	36	✓	✓	✓		
Morand[G61]	2021	Archives de Pédiatrie	1.8	France	Main unclear	1	STROBE[c]	52			✓		
Nascimento[G62]	2021	Brazilian Journal of Physical Therapy	4.8	Brazil	Main unclear	1	PRISMA-Abstracts	66	✓				✓
Prager[G63]	2021	BMJ Evidence-Based Medicine	4.7	Canada	Reporting only	3	PRISMA-DTA and PRISMA-DTA for Abstracts	71	✓				
Prins[G64]	2021	Archives of Disease in Childhood	5.0	the Netherlands	Reporting only	1	CONSORT-Harms (Extensions items only)	100	✓		✓		✓
Qin[G65]	2021	European Journal of Orthodontics	3.1	China	Reporting only	2	CONSORT and CONSORT for within person randomised trials	42	✓			✓	✓
Rod[G66]	2021	Accident Analysis and Prevention	6.4	Australia	Main not reporting	1	STROBE	60			✓		
Shi[G67]	2021	Systematic Reviews	3.1	China	Main not reporting	1	PRISMA	31	✓		✓		

Sun[G68]	2021	Nursing Open	1.9	China	Main unclear	1	PRISMA	130	✓		✓		✓
Tian[G69]	2021	Evidence-Based Complementary and Alternative Medicine	2.7	China	Main unclear	1	PRISMA	14	✓		✓		✓
Veroniki[G70]	2021	Systematic Reviews	3.1	Greece	Main reporting	2	PRISMA-NMA	1,144	✓				✓
Wenhui[G71]	2021	Diabetes Research and Clinical Practice	8.2	China	Main not reporting	1	PRISMA	11	✓		✓		✓
Wright[G72]	2021	Clinical Medicine & Research	No JIF	United States	Main reporting	1	STARD	26	✓					✓
Yang[G73]	2021	International Journal of General Medicine	2.1	China	Main unclear	1	PRISMA	12	✓		✓		✓
Yin[G74]	2021	PLoS One	3.8	China	Reporting only	1	CONSORT	53	✓		✓		
Yuan[G75]	2021	Evidence-Based Complementary and Alternative Medicine	2.7	China	Main unclear	2	PRISMA-NMA	29	✓				✓
Zhang[G76]	2021	Asian Pacific Journal of Clinical Nutrition	No JIF	China	Reporting only	2	STROBE-nut	200	✓			✓	
Zhang[G77]	2021	Chinese Medicine	4.5	China	Main unclear	2	CONSORT and CONSORT-NPT	2,447	✓				✓
Zhang[G78]	2021	Frontiers in Pharmacology	6.0	China	Main unclear	1	PRISMA	14	✓		✓		✓
Zhang[G79]	2021	Journal of Clinical Epidemiology	7.4	China[b]	Main unclear	1	CONSORT	2,844	✓				
Zheng[G80]	2021	Annals of Translational Medicine	3.6	China	Reporting only	1	STARD	45	✓			✓	

Zheng[G81]	2021	Frontiers in Medicine	5.1	China	Main unclear	1	PRISMA	238	✓			✓		
Al-Abedalla[G82]	2022	JDR Clinical & Translational Research	No JIF	United States	Main unclear	1	CONSORT	32	✓			✓		
Alshahwani[G83]	2022	Journal of Surgical Research	2.4	Qatar	Main unclear	1	PRISMA	21	✓	✓				
Astur[G84]	2022	Einstein	No JIF	Brazil	Main reporting	1	PRISMA	65	✓			✓		
Batioja[G85]	2022	Journal of Pediatric Orthopaedics	2.5	United States	Main unclear	1	CONSORT	23	✓				✓	
Bole[G86]	2022	The Journal of Sexual Medicine	3.9	United States	Main unclear	1	PRISMA	18	✓	✓				
Bonetti[G87]	2022	Research in Social and Administrative Pharmacy	3.3	Portugal	Main unclear	1	PRISMA	109	✓			✓		
Cervantes[G88]	2022	Psychiatric Services	4.2	United States	Main not reporting	1	STROBE	11		✓				
Chen[G89]	2022	Journal of Ginseng Research	5.7	Macao	Main unclear	1	CONSORT	91	✓			✓		
Cindro[G90]	2022	BMJ Open	3.0	Croatia	Main reporting	1	CONSORT-A	451	✓	✓				
de Lucena Alves[G91]	2022	Clinical Implant Dentistry and Related Research	4.3	Brazil	Main unclear	1	PRISMA-Abstracts[c]	45	✓	✓		✓		
Douglas[G92]	2022	BMJ Evidence-Based Medicine	4.7	United States	Main reporting	1	CONSORT-PRO	19	✓	✓				
Feng[G93]	2022	Clinical and Translational Gastroenterology	4.4	the Netherlands	Main not reporting	1	STARD	136		✓				
Fernández-Pires[G94]	2022	The American Journal of Occupational Therapy	2.8	Spain	Reporting only	1	CONSORT-A	78	✓		✓			
Frank[G95]	2022	Journal of Magnetic Resonance Imaging	5.1	Canada	Main reporting	1	STARD for Abstracts	2000	✓		✓			Abstracts submitted

														to specified conferences
Gebran[G96]	2022	Journal of the American College of Surgeons	6.5	United States	Reporting only	1	RECORD	118						Publications from a specified program
Gupta[G97]	2022	Perspectives in Clinical Research	No JIF	India	Main reporting	1	CONSORT	28	✓		✓			
Helliwell[G98]	2022	Health Science Reports	No JIF	United Kingdom	Main unclear	1	PRISMA	31	✓			✓		
Huang[G99]	2022	Frontiers in Public Health	6.5	China	Main unclear	1	PRISMA	10	✓	✓		✓		
Imran[G100]	2022	Journal of Clinical Epidemiology	7.4	Canada	Main unclear	1	CONSORT-ROUTINE	33	✓					
Jung[G101]	2022	Clinical Microbiology and Infection	13.3	South Korea	Reporting only	1	CONSORT	87	✓	✓		✓		
Kanukula[G102]	2022	BMJ Evidence-Based Medicine	4.7	Australia	Main unclear	1	PRISMA	40	✓				✓	
Kazi[G103]	2022	Journal of Magnetic Resonance Imaging	5.1	Canada	Main unclear	2	STARD and STARD for Abstracts	84	✓		✓			
Khachfe[G104]	2022	The American Journal of Surgery	3.1	United States	Main unclear	2	STROBE and RECORD	86		✓				Publications using specified database
Khan[G105]	2022	Multiple Sclerosis and Related Disorders	4.8	United States	Reporting only	1	CONSORT-PRO	92	✓	✓				
Kim[G106]	2022	Frontiers in Medicine	5.1	South Korea	Main not reporting	1	STROBE	62	✓			✓		
Labiste[G107]	2022	Skeletal Radiology	2.1	United States	Main not reporting	1	STARD	21	✓	✓				

Li[G108]	2022	Evidence-Based Complementary and Alternative Medicine	2.7	China	Main not reporting	1	PRISMA	27	✓		✓			
Love[G109]	2022	Critical Reviews in Oncology / Hematology	6.6	United States	Reporting only	1	PRISMA	109	✓					✓
Lu[G110]	2022	Journal of Integrative Medicine	4.0	China	Main unclear	1	PRISMA	20	✓				✓	
McCall[G111]	2022	Journal of Clinical Epidemiology	7.4	United Kingdom	Main unclear	2	CONSORT and CONSORT-ROUTINE	60	✓					
Mc Cord[G112]	2022	Journal of Clinical Epidemiology	7.4	Switzerland	Main unclear	1	CONSORT-ROUTINE	47	✓					
McErlean[G113]	2022	Irish Journal of Medical Science	2.1	United Kingdom	Reporting only	1	CONSORT	50	✓			✓		
Menne[G114]	2022	Journal of Periodontology	4.5	Germany	Reporting only	1	CONSORT-A	434	✓	✓		✓		
Newman[G115]	2022	Diabetes Research and Clinical Practice	8.2	Ireland	Main not reporting	2	CONSORT and CONSORT-PRO	206	✓		✓			
Park[G116]	2022	Korean Journal of Radiology	7.1	Korea	Reporting only	2	PRISMA and PRISMA-Abstracts	24	✓			✓		
Peña[G117]	2022	Urology	2.6	United States	Main unclear	1	PRISMA	120	✓	✓				✓
Pfannenstiel[G118]	2022	The International Journal of Oral & Maxillofacial Implants	2.9	Germany	Main reporting	2	CONSORT for within person randomised trials	244	✓				✓	
Ruan[G119]	2022	International Journal of General Medicine	2.1	China	Reporting only	2	STRICTA	44	✓		✓		✓	

Shi[G120]	2022	Cardiology Research and Practice	2.0	China	Main unclear	1	PRISMA	12	✓		✓		✓	
Shi[G121]	2022	Drug Design, Development and Therapy	4.3	China	Main not reporting	1	PRISMA	13	✓		✓		✓	
Shin[G122]	2022	International Journal of Environmental Research and Public Health	4.6	Korea	Main unclear	1	PRISMA	41	✓	✓				
Siew[G123]	2022	Psychoneuroendocrinology	4.7	Australia	Main not reporting	1	STROBE	10	✓				✓	
Streck[G124]	2022	Nicotine and Tobacco Research	5.8	United States	Main unclear	1	PRISMA	98	✓					✓
Stunnenberg[G125]	2022	Neurology	11.8	the Netherlands	Main unclear	2	CONSORT and CENT	40	✓	✓				
Tanner[G126]	2022	Drug and Alcohol Dependence	4.9	United States	Main reporting	1	PRISMA	98	✓					✓
Torgerson[G127]	2022	International Journal of Pediatric Otorhinolaryngology	1.6	United States	Main unclear	1	PRISMA	80	✓					✓
Warrier[G128]	2022	Perspectives in Clinical Research	No JIF	India	Main reporting	1	CONSORT	276	✓			✓		
Yang[G129]	2022	Evidence-Based Complementary and Alternative Medicine	2.7	China	Reporting only	2	CONSORT and STRICTA	102	✓				✓	
Yang[G130]	2022	Journal of Ethnopharmacology	5.2	China	Main unclear	1	PRISMA	52	✓		✓		✓	
Yao[G131]	2022	Journal of Integrative Medicine	4.0	China	Main unclear	1	PRISMA-A	13	✓		✓		✓	
Yin[G132]	2022	Frontiers in Physiology	4.8	China	Main not reporting	1	PRISMA	10	✓		✓		✓	

Yin[G133]	2022	International Journal of Infectious Diseases	12.1	China	Main reporting	1	CONSORT-A	53	✓		✓			
Yuniar[G134]	2022	Vaccines (Basel)	5.0	Korea	Main reporting	1	CONSORT Harms	61	✓				✓	
Zhang[G135]	2022	Human Vaccines & Immunotherapeutics	4.5	China	Reporting only	2	CONSORT and CONSORT Harms	22	✓				✓	
Zhou[G136]	2022	Therapeutic Advances in Gastroenterology	4.8	China	Main unclear	3	CONSORT extension to randomised crossover trials and CONSORT-A	173	✓			✓		
Ziemann[G137]	2022	BMC Medical Research Methodology	4.6	Germany	Reporting only	1	STROBE	147	✓		✓			
Anderson[G138]	Online only	The Journal of Arthroplasty	4.4	United States	Reporting only	1	CONSORT Harms	173	✓					✓
Bonafiglia[G139]	Online only	Journal of Sport and Health Science	13.1	Canada	Main not reporting	2	CONSORT Extension for Nonpharmacologic Trial Abstracts	27					✓	
Brito-Suárez[G140]	Online only	Pediatric Hematology and Oncology	2.1	Mexico	Main not reporting	1	STROBE	10	✓		✓			
Cremades-Martínez[G141]	Online only	Microbiology Spectrum	9.0	Spain	Main unclear	1	STARD	23	✓		✓			
Dhillon[G142]	Online only	The Laryngoscope	3.0	United States	Main unclear	1	PRISMA	142	✓					✓
Garrett[G143]	Online only	BMJ Evidence-Based Medicine	4.7	United States	Main unclear	1	PRISMA	55	✓					✓

Gysling[G144]	Online only	Seminars in Thoracic and Cardiovascular Surgery	2.4	United Kingdom	Reporting only	1	CONSORT-A	100	✓					Abstracts presented at specified annual meetings
Innocenti[G145]	Online only	Archives of Physical Medicine and Rehabilitation	4.1	the Netherlands	Main reporting	1	CONSORT	200	✓	✓				
Kim[G146]	Online only	Academic Radiology	5.5	South Korea	Reporting only	2	PRISMA-DTA and PRISMA-DTA for Abstracts	183	✓	✓				
Snider[G147]	Online only	Clinical Breast Cancer	3.1	United States	Main unclear	1	PRISMA	59	✓				✓	
Tosatto[G148]	Online only	Restorative Neurology and Neuroscience	3.0	Italy	Main unclear	1	CONSORT-A	120	✓		✓			

CENT = CONSORT Extension for Reporting N-of-1 Trials; CONSORT = Consolidated Standards of Reporting Trials; CONSORT-A = CONSORT for Abstracts; CONSORT-CHM = CONSORT for Chinese Herbal Medicine Formulas; CONSORT-Harms = CONSORT Extension for Harms; CONSORT-NPT = CONSORT Statement for Randomized Trials of Nonpharmacologic Treatments; CONSORT-PRO = Reporting of Patient-Reported Outcomes in Randomized Trials; CONSORT-ROUTINE = CONSORT Extension for the Reporting of Randomised Controlled Trials Conducted Using Cohorts and Routinely Collected Data; PRISMA = Preferred Reporting Items for Systematic Reviews and Meta-Analyse; PRISMA-A = PRISMA for Acupuncture; PRISMA-Abstracts = PRISMA for Abstracts; PRISMA-DTA = PRISMA of Diagnostic Test Accuracy Studies; PRISMA-IPD = PRISMA of Studies with Individual Participant Data; PRISMA-P = PRISMA for Protocols; PRISMA-NMA = PRISMA for Studies Incorporating Network Meta-analyses of Health Care Interventions; RECORD = Reporting of Studies Conducted Using Observational Routinely-collected Health Data; STARD = Standards for the Reporting of Diagnostic Accuracy Studies; STARdem = STARD for Studies in Dementia; STRICTA = Standards for Reporting Interventions in Clinical Trials of Acupuncture; STROBE = Strengthening the Reporting of Observational Studies in Epidemiology; STROBE-nut = STROBE Studies in Nutritional Epidemiology; TIDieR = Template for Intervention Description and Replication

[a]Year of publication based on when data were extracted
[b]This study has two corresponding authors; we selected the country of affiliation of the corresponding author who was also the last author (Bian)
[c]Included additional reporting guidelines not eligible for our review.

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G1. Alharbi F, Almutairi A. Are published randomized clinical trials abstracts on periodontics reported adequately? *Contemp Clin Trials Commun* 2020;20:100656. doi:10.1016/j.conctc.2020.100656

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G4. Duan Y, Xu Z, Deng J, et al. A scoping review of cohort studies assessing traditional Chinese medicine interventions. *BMC Complement Med Ther* 2020;20:361. doi:10.1186/s12906-020-03150-9

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Appendix H: Rating Method and Number of Raters for Overall Sample and Subgroups

Subgroups	N % (95%CI)									
	Rating Method				**Number of Raters**					
	Dichotomous	Multi-level	Other	Not reported	1 rater	1 rater with validation from a second rater	2 or more independent raters	2 or more raters (independence not stated)	Other	Not Reported
All	66 45% (37%, 53%)	61 41% (34%, 49%)	2 1% (0%, 5%)	19 13% (8%, 19%)	3 2% (1%, 6%)	10 7% (4%, 12%)	113 76% (69%, 83%)	9 6% (3%, 11%)	3 2% (1%, 6%)	10 7% (4%, 12%)
Country of Corresponding Author Affiliation										
Canada	6 75% (41%, 93%)	1 13% (2%, 47%)	0 0% (0%, 32%)	1 13% (2%, 47%)	0 0% (0%, 32%)	1 13% (2%, 47%)	6 75% (41%, 93%)	0 0% (0%, 32%)	0 0% (0%, 32%)	1 13% (2%, 47%)
China	14 28% (17%, 41%)	33 65% (51%, 76%)	0 0% (0%, 7%)	4 8% (3%, 19%)	0 0% (0%, 7%)	2 4% (1%, 13%)	46 90% (79%, 96%)	3 6% (2%, 16%)	0 0% (0%, 7%)	0 0% (0%, 7%)
United Kingdom	3 33% (12%, 65%)	4 44% (19%, 73%)	0 0% (0%, 30%)	2 22% (6%, 55%)	0 0% (0%, 30%)	3 33% (12%, 65%)	5 56% (27%, 81%)	0 0% (0%, 30%)	0 0% (0%, 30%)	1 11% (2%, 44%)
United States	10 37% (22%, 56%)	12 44% (28%, 63%)	1 4% (1%, 18%)	4 15 (6%, 33%)	1 4% (1%, 18%)	1 4% (1%, 18%)	21 78% (59%, 89%)	4 15% (6%, 33%)	0 0% (0%, 13%)	0 0% (0%, 13%)
Other	33 62% (49%, 74%)	11 21% (12%, 34%)	1 2% (0%, 10%)	8 15% (8%, 27%)	2 4% (1%, 13%)	3 6% (2%, 15%)	35 66% (53%, 77%)	2 4% (1%, 13%)	3 6% (2%, 15%)	8 15% (8%, 27%)
Journal Impact Factor[a]										
≤ 2.9	16 36% (23%, 50%)	21 47% (33%, 61%)	0 0% (0%, 8%)	8 18% (9%, 31%)	0 0% (0%, 8%)	0 0% (0%, 8%)	36 80 (66%, 89%)	2 4% (1%, 15%)	2 4% (1%, 15%)	5 11% (5%, 24%)
2.9< JIF ≤4.9	26 47% (35%, 60%)	20 36% (25%, 50%)	2 4% (1%, 12%)	7 13% (6%, 24%)	3 6% (2%, 15%)	5 9% (4%, 20%)	41 75% (62%, 84%)	4 7% (3%, 17%)	1 2% (0%, 10%)	1 2% (0%, 10%)
> 2.9	24 50% (36%, 64%)	20 42% (29%, 56%)	0 0% (0%, 7%)	4 8% (3%, 20%)	0 0% (0%, 7%)	5 10% (5%, 22%)	36 75% (61, 85%)	3 6% (2%, 17%)	0 0% (0%, 7%)	4 8% (3%, 20%)
Reporting Guideline										
CONSORT & extensions	35 57% (45%, 69%)	14 23% (14%, 35%)	2 3% (1%, 11%)	10 16% (9%, 28%)	0 0% (0%, 6%)	6 10% (5%, 20%)	41 67% (55%, 78%)	4 7% (3%, 16%)	3 5% (2%, 14%)	7 11% (6%, 22%)
PRISMA & extensions	14 24% (15%, 36%)	40 68% (55%, 78%)	0 0% (0%, 6%)	5 9% (4%, 18%)	0 0% (0%, 6%)	0 0% (0%, 6%)	53 90% (80%, 95%)	4 7% (3%, 16%)	0 0% (0%, 6%)	2 3% (1%, 12%)
STARD & extensions	6 60% (31%, 83%)	2 20% (6%, 51%)	0 0% (0%, 28%)	2 20% (6%, 51%)	0 0% (0%, 28%)	0 0% (0%, 28%)	10 100% (72%, 100%)	0 0% (0%, 28%)	0 0% ()%, 28%)	0 0% (0%, 28%)
STROBE & extensions	11 61% (39%, 80%)	5 28% (13%, 51%)	0 0% (0%, 18%)	2 11% (3%, 33%)	3 17% (6%, 39%)	4 22% (%, 45%)	9 50% (29%, 71%)	1 6% (1%, 26%)	0 0% (0%, 18%)	1 6% (1%, 26%)
Research Question										
The only research question was related to reporting or there were	55 44% (36%, 53%)	50 40% (32%, 49%)	2 2% (0%, 6%)	17 14% (9%, 21%)	0 0% (0%, 3%)	7 6% (3%, 11%)	96 77% (69%, 84%)	9 7% (4%, 13%)	3 2% (1%, 7%)	9 7% (4%, 13%)

multiple research questions and the main one was related to reporting or not defined										
The main research question was not related to reporting	11 46% (28%, 65%)	11 46% (28%, 65%)	0 0% (0%, 14%)	2 8% (2%, 26%)	3 13% (4%, 31%)	3 13% (4%, 31%)	17 71% (51%, 85%)	0 0% (0%, 14%)	0 0% (0%, 14%)	1 4% (1%, 20%)

CONSORT = Consolidated Standards of Reporting Trials; PRISMA = Preferred Reporting Items for Systematic Reviews and Meta-Analyses; STARD = Standards for the Reporting of Diagnostic Accuracy Studies; STROBE = Strengthening the Reporting of Observational Studies in Epidemiology

[a]Journals without a journal impact factor coded as 0.

Appendix I: Outcomes for All Included Studies

First Author	Year[a]	Journal	Rating Method Used	Number of Raters	Concurrence Between Raters	Coding Explanation	Level of Reporting of Included Study Results	Publication Conclusion
Alharbi[G1]	2020	Contemporary Clinical Trials Communications	Dichotomous	Other (A random sample of 10% of the papers was scored by a second examiner)	N/A	Not replicable	Not reported	Inadequate - Explicit
Candela[G2]	2020	International Journal of Environmental Research and Public Health	Dichotomous	2 or more independent raters	Inter-rater reliability = 97%	Not replicable	Partially reported – All studies (Authors reported number and ratio of missed checklist items for each study)	Vague
Dai[G3]	2020	BMC Medical Research Methodology	Multi-level	2 or more raters (Independence not stated)	N/A	Not replicable	Not reported	Inadequate - Explicit
Duan[G4]	2020	BMC Complementary Medicine and Therapies	Multi-level	2 or more independent raters	Average ICC values of three rounds pre-tests = 0.62, 0.79 and 0.83 respectively	Not replicable	Not reported	Inadequate - Explicit
Gore[G5]	2020	Journal of Chronic Obstructive Pulmonary Disease	Dichotomous	2 or more independent raters	Cohen's k =0.91 (95%CI 0.79–1.03)	Not replicable	Completely reported	No mention
Gundogan[G6]	2020	JAAD International	Multi-level	Not reported	N/A	Not replicable	Partially reported - All studies (Authors reported % of adequately reported items for each study)	Inadequate - Implicit
Hogan[G7]	2020	American Journal of Clinical Pathology	Dichotomous	2 or more independent raters	Cohen's k = 0.88 (95%CI 0.87-0.89)	Not replicable	Partially reported - Some studies (Authors reported overall adherence (%) and items with < 20% reporting for 5 studies)	Inadequate - Explicit
Hou[G8]	2020	Evidence-Based Complementary and Alternative Medicine	Multi-level	2 or more independent raters	Cohen's k = 0.93	Not replicable	Completely reported	Inadequate - Explicit
Huang[G9]	2020	Frontiers in Aging Neuroscience	Multi-level	2 or more independent raters	Not reported	Not replicable	Completely reported	No mention
Huang[G10]	2020	Journal of Pain Research	Multi-level	2 or more independent raters	Not reported	Not replicable	Partially reported - All studies (Overall PRISMA score reported for each individual study)	Inadequate - Implicit
Li[G11]	2020	Evidence-Based Complementary and Alternative Medicine	Dichotomous	2 or more independent raters	Not reported	Not replicable	Completely reported	Inadequate - Explicit
Li[G12]	2020	Journal of Dentistry	Dichotomous	2 or more independent raters	Not reported	Not replicable	Not reported	Inadequate - Explicit
Lyu[G13]	2020	Gastroenterology Research and Practice	Multi-level	2 or more independent raters	Not reported	Not replicable	Completely reported	Inadequate - Explicit

Manouchehri[G14]	2020	Iranian Journal of Nursing and Midwifery Research	Not reported	2 or more independent raters	Not reported	Not replicable	Not reported	Inadequate - Implicit
Mazhar[G15]	2020	International Journal of Infectious Diseases	Dichotomous	1 rater with validation from a second rater	N/A	Partially replicable	Completely reported	Inadequate - Implicit
Ngah[G16]	2020	Vaccines (Basel)	Dichotomous	2 or more independent raters	Not reported	Not replicable	Not reported	Inadequate - Explicit
Rainkie[G17]	2020	PLoS One	Dichotomous	2 or more independent raters	Cohen's k = 0.82 (PRISMA-P) 0.43 (PRISMA) % agreement = 92% (PRISMA-P) 91% (PRISMA)	Not replicable	Partially reported - All studies (Authors reported total PRISMA and PRISMA-P scores for each study)	Inadequate - Explicit
Suchá[G18]	2020	Radiology: Cardiothoracic Imaging	Dichotomous	2 or more independent raters	Not reported	Not replicable	Completely reported	Inadequate - Implicit
Tian[G19]	2020	Chinese Medicine	Dichotomous	2 or more independent raters	Not reported	Not replicable	Not reported	Inadequate - Implicit
Zhang[G20]	2020	Chinese Acupuncture & Moxibustion	Not reported	2 or more independent raters	Not reported	Not replicable	Not reported	Inadequate - Explicit
Zhu[G21]	2020	International Immunopharmacology	Multi-level	2 or more independent raters	Not reported	Not replicable	Completely reported	Inadequate - Explicit
Adams[G22]	2021	BMJ Open	Multi-level	2 or more independent raters	ICC= 0.83 (95% CI:0.75 to 0.88)	Fully replicable	Not reported	Vague
Adobes Martin[G23]	2021	BMC Medical Research Methodology	Multi-level	2 or more independent raters	Not reported	Fully replicable	Completely reported	Inadequate - Implicit
Almeheyawi[G24]	2021	Journal of Foot and Ankle Research	Dichotomous	1 rater with validation from a second rater	N/A	Not replicable	Completely reported	No mention
Bachelet[G25]	2021	BMC Medical Research Methodology	Other (Each item was measured as a binary outcome or with three ordinal categories)	2 or more independent raters	80% concordance	Partially replicable	Completely reported	Inadequate - Explicit
Bae[G26]	2021	Complementary Therapies in Clinical Practice	Not reported	2 or more independent raters	Not reported	Not replicable	Not reported	Inadequate - Explicit

Barhli[G27]	2021	Critical Reviews in Oncology / Hematology	Not reported	Not reported	N/A	Not replicable	Not reported	Inadequate - Explicit
Beneki[G28]	2021	Journal of Thrombosis and Thrombolysis	Dichotomous	Not reported	N/A	Not replicable	Not reported	Inadequate - Explicit
Berton[G29]	2021	Journal of Clinical Medicine	Dichotomous	2 or more independent raters	% agreement = 99%	Not replicable	Partially reported - All studies (Authors reported number and ratio of missed checklist items for each study)	Vague
Besag[G30]	2021	Journal of Psychopharmacology	Multi-level	2 or more independent raters	Not reported	Not replicable	Completely reported	No mention
Bruno[G31]	2021	American Journal of Obstetrics & Gynecology MFM	Dichotomous	2 or more raters (independence not stated)	N/A	Not replicable	Not reported	Inadequate - Implicit
Burton[G32]	2021	Cochrane Database of Systematic Reviews	Multi-level	2 or more independent raters	Not reported	Not replicable	Completely reported	Inadequate - Explicit
Canagarajah[G33]	2021	European Archives of Oto-Rhino-Laryngology	Dichotomous	1 rater with validation from a second rater	N/A	Not replicable	Not reported	No mention
Cao[G34]	2021	Journal of Clinical Epidemiology	Multi-level	2 or more independent raters	Cohen's k > 0.68 (in 24/27 items)	Not replicable	Not reported	Vague
Chair[G35]	2021	International Journal of Environmental Research and Public Health	Dichotomous	1 rater with validation from a second rater	N/A	Not replicable	Completely reported	No mention
Cho[G36]	2021	Healthcare (Basel)	Dichotomous	2 or more independent raters	Not reported	Not replicable	Completely reported	Mixed
Du[G37]	2021	Thoracic Cancer	Multi-level	2 or more raters (independence not stated)	N/A	Not replicable	Not reported	Inadequate - Explicit
Duan[G38]	2021	The American Journal of Chinese Medicine	Multi-level	2 or more independent raters	Average ICC values of two rounds of pre-tests were 0.74 and 0.78 (2 articles/round)	Fully replicable	Not reported	Inadequate - Explicit
Eliya[G39]	2021	Journal of the American Heart Association	Dichotomous	2 or more independent raters	Not reported	Partially replicable	Not reported	Vague
Escobar-Viera[G40]	2021	Internet Interventions	Dichotomous	1 rater with validation from a second rater	N/A	Not replicable	Completely reported	No mention
Garnier[G41]	2021	Neuro-Oncology Practice	Multi-level	2 or more independent raters	Median % agreement = 77% (Range 61% - 98%)	Not replicable	Partially reported - All studies (P Authors reported total adherence scores for each study)	Inadequate - Explicit
Hu[G42]	2021	Journal of Advanced Nursing	Multi-level	2 or more independent raters	Not reported	Not replicable	Completely reported	No mention

Huang[G43]	2021	Pain Research and Management	Multi-level	2 or more independent raters	Not reported	Not replicable	Completely reported	Vague
Jacobsen[G44]	2021	British Journal of Anaesthesia	Multi-level	2 or more independent raters	Not reported	Not replicable	Partially reported - All studies (Proportion of PRISMA criteria met for each individual study)	Vague
Jamnani[G45]	2021	Medical Journal of the Islamic Republic of Iran	Multi-level	2 or more independent raters	Not reported	Not replicable	Partially reported - Some studies (The authors reported complete ratings for 2 studies as an example)	No mention
Jumah[G46]	2021	Stroke	Not reported	2 or more independent raters	Not reported	Not replicable	Not reported	Inadequate - Explicit
Kennedy[G47]	2021	Haemophilia	Dichotomous	1 rater	N/A	Not replicable	Completely reported	No mention
Kim[G48]	2021	Harm Reduction Journal	Multi-level	2 or more independent raters	Not reported	Not replicable	Completely reported	Vague
Knippschild[G49]	2021	BMJ Open	Not reported	2 or more independent raters	Authors provided Cohen's k for each item	Not replicable	Not reported	Inadequate - Implicit
Kshirsagar[G50]	2021	Journal of Oral and Maxillofacial Surgery	Dichotomous	Other (4 assessed by all authors together and each author assessed 19 articles individually)	N/A	Not replicable	Not reported	Inadequate - Implicit
Li[G51]	2021	Annals of Palliative Medicine	Multi-level	2 or more independent raters	Cohen's k =0.89	Not replicable	Completely reported	Inadequate - Implicit
Li[G52]	2021	Evidence-Based Complementary and Alternative Medicine	Dichotomous	2 or more independent raters	Not reported	Not replicable	Completely reported	Inadequate - Explicit
Li[G53]	2021	Expert Review of Molecular Diagnostics	Multi-level	2 or more independent raters	Not reported	Not replicable	Not reported	No mention
Li[G54]	2021	Journal of Clinical Epidemiology	Multi-level	2 or more independent raters	Not reported	Not replicable	Completely reported	No mention
Liang[G55]	2021	Chinese Medicine	Multi-level	2 or more independent raters	Not reported	Not replicable	Completely reported	No mention
Liu[G56]	2021	Journal of Pain Research	Dichotomous	2 or more independent raters	Authors reported Cohen's k for each item	Not replicable	Completely reported	Vague
Liu[G57]	2021	Obesity Reviews	Multi-level	2 or more independent raters	Not reported	Fully replicable	Not reported	Vague

Lu[G58]	2021	Phytomedicine	Multi-level	2 or more independent raters	Not reported	Not replicable	Completely reported	Inadequate - Implicit
Malone[G59]	2021	Cancer Medicine	Dichotomous	2 or more independent raters	Not reported	Not replicable	Not reported	Mixed
McGrath[G60]	2021	Journal of Pediatric Urology	Not reported	Not reported	N/A	Not replicable	Not reported	Inadequate - Explicit
Morand[G61]	2021	Archives de Pédiatrie	Not reported	Not reported	N/A	Not replicable	Not reported	Adequate
Nascimento[G62]	2021	Brazilian Journal of Physical Therapy	Dichotomous	2 or more independent raters	Authors reported Cohen's k for each item	Not replicable	Not reported	Inadequate - Explicit
Prager[G63]	2021	BMJ Evidence-Based Medicine	Dichotomous	2 or more independent raters	Cohen's k =0.59	Partially replicable	Not reported	Vague
Prins[G64]	2021	Archives of Disease in Childhood	Dichotomous	2 or more independent raters	Cohen's k = 0.91 (Range 0.60–1.00)	Not replicable	Not reported	Inadequate - Implicit
Qin[G65]	2021	European Journal of Orthodontics	Dichotomous	2 or more independent raters	Not reported	Not replicable	Not reported	Inadequate - Implicit
Rod[G66]	2021	Accident Analysis and Prevention	Dichotomous	1 rater with validation from a second rater	N/A	Not replicable	Completely reported	No mention
Shi[G67]	2021	Systematic Reviews	Multi-level	2 or more independent raters	Not reported	Not replicable	Partially reported - All studies (Authors reported total PRISMA scores for each study)	Inadequate - Implicit
Sun[G68]	2021	Nursing Open	Multi-level	2 or more independent raters	Cohen's k = 0.76	Not replicable	Not reported	Inadequate - Explicit
Tian[G69]	2021	Evidence-Based Complementary and Alternative Medicine	Multi-level	2 or more independent raters	Not reported	Not replicable	Completely reported	Inadequate - Implicit
Veroniki[G70]	2021	Systematic Reviews	Dichotomous	Not reported	N/A	Not replicable	Not reported	Vague
Wenhui[G71]	2021	Diabetes Research and Clinical Practice	Multi-level	2 or more independent raters	Not reported	Not replicable	Not reported	No mention
Wright[G72]	2021	Clinical Medicine & Research	Dichotomous	2 or more independent raters	Not reported	Not replicable	Not reported	Inadequate - Explicit
Yang[G73]	2021	International Journal of General Medicine	Dichotomous	2 or more independent raters	Not reported	Not replicable	Completely reported	Inadequate - Explicit
Yin[G74]	2021	PLoS One	Dichotomous	2 or more independent raters	Not reported	Not replicable	Not reported	Inadequate - Explicit

Yuan[G75]	2021	Evidence-Based Complementary and Alternative Medicine	Multi-level	2 or more independent raters	Not reported	Not replicable	Completely reported	Vague
Zhang[G76]	2021	Asian Pacific Journal of Clinical Nutrition	Multi-level	2 or more independent raters	Cohen's k =0.93	Not replicable	Not reported	Inadequate - Explicit
Zhang[G77]	2021	Chinese Medicine	Dichotomous	2 or more independent raters	Not reported	Fully replicable	Not reported	Inadequate - Implicit
Zhang[G78]	2021	Frontiers in Pharmacology	Multi-level	2 or more independent raters	Not reported	Not replicable	Completely reported	Inadequate - Implicit
Zhang[G79]	2021	Journal of Clinical Epidemiology	Dichotomous	2 or more independent raters	Authors reported interrater agreement for each item	Not replicable	Not reported	Inadequate - Implicit
Zheng[G80]	2021	Annals of Translational Medicine	Not reported	2 or more independent raters	Not reported	Not replicable	Not reported	Inadequate - Explicit
Zheng[G81]	2021	Frontiers in Medicine	Multi-level	2 or more independent raters	Not reported	Not replicable	Not reported	Inadequate - Explicit
Al-Abedalla[G82]	2022	JDR Clinical & Translational Research	Dichotomous	2 or more independent raters	Not reported	Not replicable	Partially reported - All studies (Authors reported overall CONSORT score for each study)	Inadequate - Explicit
Alshahwani[G83]	2022	Journal of Surgical Research	Multi-level	2 or more independent raters	Not reported	Not replicable	Partially reported - All studies (Authors reported total percentage of reported items for PRISMA for each study)	Adequate
Astur[G84]	2022	einstein	Multi-level	2 or more independent raters	Not reported	Not replicable	Not reported	Vague
Batioja[G85]	2022	Journal of Pediatric Orthopaedics	Multi-level	2 or more independent raters	Not reported	Not replicable	Not reported	Inadequate - Explicit
Bole[G86]	2022	The Journal of Sexual Medicine	Not reported	2 or more raters (independence not stated)	N/A	Not replicable	Not reported	Inadequate - Implicit
Bonetti[G87]	2022	Research in Social and Administrative Pharmacy	Dichotomous	2 or more independent raters	Not reported	Not replicable	Not reported	No mention
Cervantes[G88]	2022	Psychiatric Services	Not reported	1 rater	N/A	Not replicable	Partially reported - All studies (Authors reported total STROBE adherence (%) for each study)	No mention
Chen[G89]	2022	Journal of Ginseng Research	Dichotomous	2 or more independent raters	Not reported	Not replicable	Completely reported	Vague
Cindro[G90]	2022	BMJ Open	Dichotomous	2 or more independent raters	Cohen's k > 0.60 for all items	Not replicable	Not reported	Inadequate - Explicit

de Lucena Alves[G91]	2022	Clinical Implant Dentistry and Related Research	Dichotomous	2 or more independent raters	Not reported	Not replicable	Not reported	Mixed
Douglas[G92]	2022	BMJ Evidence-Based Medicine	Other (Both dichotomous and multilevel methods were used)	2 or more independent raters	Not reported	Not replicable	Not reported	Inadequate - Explicit
Feng[G93]	2022	Clinical and Translational Gastroenterology	Multi-level	2 or more independent raters	Not reported	Partially replicable	Not reported	Inadequate - Implicit
Fernández-Pires[G94]	2022	The American Journal of Occupational Therapy	Dichotomous	2 or more independent raters	Cohen's k $\geq$ 0.80 (Random sample of 34 articles)	Not replicable	Not reported	Mixed
Frank[G95]	2022	Journal of Magnetic Resonance Imaging	Dichotomous	2 or more independent raters	Not reported	Fully replicable	Not reported	No mention
Gebran[G96]	2022	Journal of the American College of Surgeons	Dichotomous	2 or more independent raters	% agreement = 84%	Not replicable	Not reported	Inadequate - Explicit
Gupta[G97]	2022	Perspectives in Clinical Research	Dichotomous	Not reported	N/A	Not replicable	Not reported	Vague
Helliwell[G98]	2022	Health Science Reports	Not reported	2 or more independent raters	Not reported	Not replicable	Not reported	Vague
Huang[G99]	2022	Frontiers in Public Health	Multi-level	2 or more independent raters	Not reported	Not replicable	Completely reported	Inadequate - Implicit
Imran[G100]	2022	Journal of Clinical Epidemiology	Multi-level	1 rater with validation from a second rater	N/A	Fully replicable	Completely reported	Inadequate - Explicit
Jung[G101]	2022	Clinical Microbiology and Infection	Not reported	Not reported	N/A	Not replicable	Partially reported - All studies (Authors reported total CONSORT score for each study)	Adequate
Kanukula[G102]	2022	BMJ Evidence-Based Medicine	Dichotomous	2 or more independent raters	Not reported	Not replicable	Partially reported - All studies (Authors reported PRISMA index score for each study)	Mixed
Kazi[G103]	2022	Journal of Magnetic Resonance Imaging	Dichotomous	2 or more independent raters	Cohen's k = 0.65 to 0.70 (STARD); 0.71 to 0.76 (STARD for Abstracts)	Fully replicable	Not reported	Vague
Khachfe[G104]	2022	The American Journal of Surgery	Dichotomous	2 or more independent raters	% agreement = 91% (STROBE) 92% (RECORD)	Not replicable	Partially reported - All studies (Authors reported total reporting guideline scores for each study)	Adequate

Khan[G105]	2022	Multiple Sclerosis and Related Disorders	Dichotomous	2 or more independent raters	Not reported	Not replicable	Not reported	Inadequate - Explicit
Kim[G106]	2022	Frontiers in Medicine	Dichotomous	2 or more independent raters	Not reported	Not replicable	Completely reported	No mention
Labiste[G107]	2022	Skeletal Radiology	Not reported	2 or more independent raters	Not reported	Not replicable	Partially reported - All studies (Authors reported average STARD adherence for each study)	No mention
Li[G108]	2022	Evidence-Based Complementary and Alternative Medicine	Multi-level	2 or more independent raters	Not reported	Not replicable	Completely reported	Inadequate - Implicit
Love[G109]	2022	Critical Reviews in Oncology / Hematology	Multi-level	2 or more independent raters	Not reported	Not replicable	Partially reported - All studies (Authors reported total PRISMA score for each study)	Inadequate - Explicit
Lu[G110]	2022	Journal of Integrative Medicine	Multi-level	2 or more independent raters	Not reported	Not replicable	Completely reported	Inadequate - Explicit
McCall[G111]	2022	Journal of Clinical Epidemiology	Multi-level	1 rater with validation from a second rater	N/A	Fully replicable	Completely reported	Inadequate - Explicit
Mc Cord[G112]	2022	Journal of Clinical Epidemiology	Multi-level	2 or more independent raters	Not reported	Fully replicable	Completely reported	Inadequate - Explicit
McErlean[G113]	2022	Irish Journal of Medical Science	Not reported	2 or more independent raters	Not reported	Not replicable	Partially reported - All studies (Authors reported number of adhered CONSORT items for each study)	Mixed
Menne[G114]	2022	Journal of Periodontology	Multi-level	Other (Two reviewers extracted data in duplicate and independently for 30 abstracts. Differences were discussed until agreement reached 80% and thereafter data extraction was done by one reviewer.)	N/A	Fully replicable	Not reported	Inadequate - Explicit
Newman[G115]	2022	Diabetes Research and Clinical Practice	Dichotomous	2 or more independent raters	Not reported	Not replicable	Not reported	Vague
Park[G116]	2022	Korean Journal of Radiology	Not reported	2 or more raters (Independence not stated)	N/A	Not replicable	Partially reported - Some studies (The authors report articles that did not adhere to particular PRISMA guideline items)	Inadequate - Implicit
Peña[G117]	2022	Urology	Multi-level	2 or more independent raters	Not reported	Not replicable	Partially reported - All studies (Authors reported total PRISMA score for each study)	Mixed

Pfannenstiel[G118]	2022	The International Journal of Oral & Maxillofacial Implants	Multi-level	2 or more raters (Independence not stated)	N/A	Fully replicable	Not reported	Inadequate - Explicit
Ruan[G119]	2022	International Journal of General Medicine	Dichotomous	2 or more raters (Independence not stated)	N/A	Not replicable	Not reported	Inadequate - Explicit
Shi[G120]	2022	Cardiology Research and Practice	Dichotomous	2 or more independent raters	Not reported	Not replicable	Completely reported	Vague
Shi[G121]	2022	Drug Design, Development and Therapy	Multi-level	2 or more independent raters	Not reported	Not replicable	Completely reported	Inadequate - Implicit
Shin[G122]	2022	International Journal of Environmental Research and Public Health	Multi-level	2 or more independent raters	Not reported	Not replicable	Completely reported	No mention
Siew[G123]	2022	Psychoneuroendocrinology	Dichotomous	1 rater	N/A	Not replicable	Partially reported - All studies (Authors provided completeness of reporting score (COR) for each study)	No mention
Streck[G124]	2022	Nicotine and Tobacco Research	Multi-level	2 or more raters (Independence not stated)	N/A	Not replicable	Partially reported - All studies (Authors reported PRISMA percent complete for each study)	Inadequate - Explicit
Stunnenberg[G125]	2022	Neurology	Dichotomous	Not reported	N/A	Not replicable	Not reported	Inadequate - Explicit
Tanner[G126]	2022	Drug and Alcohol Dependence	Multi-level	2 or more raters (Independence not stated)	N/A	Not replicable	Partially reported - All studies (Authors reported PRISMA % complete for each study)	Vague
Torgerson[G127]	2022	International Journal of Pediatric Otorhinolaryngology	Multi-level	2 or more independent raters	Not reported	Not replicable	Partially reported - All studies (Authors reported total PRISMA score for each study)	Mixed
Warrier[G128]	2022	Perspectives in Clinical Research	Not reported	Not reported	N/A	Not replicable	Not reported	Inadequate - Explicit
Yang[G129]	2022	Evidence-Based Complementary and Alternative Medicine	Multi-level	2 or more independent raters	Authors reported Cohen's k coefficient for each item	Not replicable	Completely reported	Inadequate - Implicit
Yang[G130]	2022	Journal of Ethnopharmacology	Dichotomous	2 or more independent raters	Not reported	Not replicable	Completely reported	Inadequate - Explicit
Yao[G131]	2022	Journal of Integrative Medicine	Multi-level	2 or more independent raters	Cohen's k = 0.91	Not replicable	Completely reported	No mention
Yin[G132]	2022	Frontiers in Physiology	Multi-level	2 or more independent raters	Not reported	Not replicable	Completely reported	No mention
Yin[G133]	2022	International Journal of Infectious Diseases	Multi-level	2 or more independent raters	Not reported	Not replicable	Not reported	Inadequate - Explicit

Yuniar[G134]	2022	Vaccines (Basel)	Dichotomous	2 or more independent raters	Cohen's k = 0.79	Not replicable	Not reported	Adequate
Zhang[G135]	2022	Human Vaccines & Immunotherapeutics	Not reported	2 or more independent raters	Authors reported Cohen's k for each item	Not replicable	Not reported	Adequate
Zhou[G136]	2022	Therapeutic Advances in Gastroenterology	Not reported	1 rater with validation from a second rater	N/A	Not replicable	Not reported	Inadequate - Implicit
Ziemann[G137]	2022	BMC Medical Research Methodology	Dichotomous	1 rater with validation from a second rater	N/A	Fully replicable	Partially reported - All studies (Authors reported % STROBE completion for each study)	Inadequate - Explicit
Anderson[G138]	Online only	The Journal of Arthroplasty	Dichotomous	2 or more independent raters	Not reported	Fully replicable	Not reported	Inadequate - Explicit
Bonafiglia[G139]	Online only	Journal of Sport and Health Science	Dichotomous	2 or more independent raters	Not reported	Not replicable	Completely reported	No mention
Brito-Suárez[G140]	Online only	Pediatric Hematology and Oncology	Dichotomous	2 or more independent raters	Not reported	Not replicable	Completely reported	No mention
Cremades-Martínez[G141]	Online only	Microbiology Spectrum	Dichotomous	2 or more independent raters	Not reported	Not replicable	Completely reported	Vague
Dhillon[G142]	Online only	The Laryngoscope	Multi-level	2 or more independent raters	Not reported	Not replicable	Partially reported - All studies (Authors reported total PRISMA score for each study)	Mixed
Garrett[G143]	Online only	BMJ Evidence-Based Medicine	Multi-level	2 or more independent raters	Not reported	Not replicable	Partially reported - All studies (Authors provided percent PRISMA complete for each study)	Inadequate - Explicit
Gysling[G144]	Online only	Seminars in Thoracic and Cardiovascular Surgery	Dichotomous	2 or more independent raters	Authors reported Cohen's k for each item	Not replicable	Not reported	Inadequate - Explicit
Innocenti[G145]	Online only	Archives of Physical Medicine and Rehabilitation	Dichotomous	2 or more independent raters	Cohen's k = 0.83	Not replicable	Not reported	Inadequate - Explicit
Kim[G146]	Online only	Academic Radiology	Dichotomous	2 or more independent raters	Cohen's k = 0.75	Not replicable	Not reported	Inadequate - Implicit
Snider[G147]	Online only	Clinical Breast Cancer	Multi-level	2 or more independent raters	Not reported	Not replicable	Partially reported - All studies (Authors reported PRISMA % complete for each study)	Mixed
Tosatto[G148]	Online only	Restorative Neurology and Neuroscience	Dichotomous	2 or more independent raters	Cohen's k = 0.88	Not replicable	Not reported	Inadequate - Implicit

[a]Year of publication based on when data were extracted.
[b]Contacted corresponding authors 3 times asking for supplementary file and did not receive a response. We also contacted the corresponding journal manager, who then contacted the authors as well, and never heard back from them. The outcomes are based on data that were available to us.