

PRISMA 2020 Main Checklist

Topic	No.	Item	Location where item is reported
TITLE			
Title	1	Identify the report as a systematic review.	Title page, Page 1
ABSTRACT			
Abstract	2	See the PRISMA 2020 for Abstracts checklist	
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of existing knowledge.	Introduction (p.2, lines 44–66)
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses.	Introduction, end (p.2, lines 101–106)
METHODS			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.	Methods (pp.17–18, lines 764–768)
Information sources	6	Specify all databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.	Methods (p.17, lines 747–755)
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used.	Methods (p.17, lines 747–755)
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.	Methods (pp.17–18, lines 769–773); PRISMA flow diagram (Fig.1, p.4)

Topic	No.	Item	Location where item is reported
Data collection process	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process.	Methods (p.18, lines 774–782)
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to decide which results to collect.	Methods (pp.18–19, lines 774–782); Results section (pp.4–8)
	10b	List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information.	Methods (pp.18–19, lines 774–781); Table 1 (p.9)
Study risk of bias assessment	11	Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.	Discussion (pp.16–17; qualitative appraisal only)
Effect measures	12	Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results.	Not applicable
Synthesis methods	13a	Describe the processes used to decide which studies were eligible for each synthesis (e.g. tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item 5)).	Methods – Eligibility & Selection, p.17–18, lines 756–771
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions.	Methods – Data extraction, p.18–19, lines 774–782
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses.	Results (Fig.1, Table 1, pp.4–9).

Topic	No.	Item	Location where item is reported
Reporting bias assessment	13d	Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used.	Methods – Synthesis of results, p.18–19, lines 782–789
	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression).	Discussion – Limitations, p.16–17, lines 715–726
	13f	Describe any sensitivity analyses conducted to assess robustness of the synthesized results.	Not applicable (narrative synthesis only)
	14	Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases).	Not performed
	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome.	Not performed
RESULTS			
Study selection	16a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram.	Results 2.1 (pp.3–4); PRISMA flow diagram (Fig.1, p.4)
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded.	Results 2.1 (pp.3–4)
Study characteristics	17	Cite each included study and present its characteristics.	Results 2.2–2.10 (pp.4–9); Table 1 (p.9)
Risk of bias in studies	18	Present assessments of risk of bias for each included study.	Discussion (pp.16–17, limitations)
Results of individual studies	19	For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g. confidence/credible interval), ideally using structured tables or plots.	Results subsections 2.2–2.9 (pp.4–8); Table 1 (p.9)

Topic	No.	Item	Location where item is reported
Results of syntheses	20a	For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies.	Results – Summary of characteristics & narrative synthesis, pp.8–9, lines 366–372; Discussion 3.1, pp.11–12, lines 449–466
	20b	Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g. confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect.	Not applicable – no meta-analysis performed (narrative only).
	20c	Present results of all investigations of possible causes of heterogeneity among study results.	Not applicable – no formal heterogeneity analyses (not feasible for case reports).
	20d	Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results.	Not applicable – no sensitivity analyses conducted
Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed.	Not applicable (no quantitative synthesis).
Certainty of evidence	22	Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed.	Discussion (pp.16–17; narrative appraisal).
DISCUSSION			
Discussion	23a	Provide a general interpretation of the results in the context of other evidence.	Discussion 3.1–3.2 (pp.11–16)
	23b	Discuss any limitations of the evidence included in the review.	Discussion 3.2.7 (pp.16–17)
	23c	Discuss any limitations of the review processes used.	Discussion 3.2.7 (pp.16–17)
	23d	Discuss implications of the results for practice, policy, and future research.	Discussion 3.2.6 and Conclusions (pp.16–19)
OTHER INFORMATION			
Registration and protocol	24a	Provide registration information for the review, including register name and registration number, or state that the review was not registered.	Methods – Protocol not registered, p.17, lines 738–745

Topic	No.	Item	Location where item is reported
Support	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared.	Methods – No protocol prepared, p.17, lines 738–745
	24c	Describe and explain any amendments to information provided at registration or in the protocol.	Not applicable – no amendments (since no registration/protocol)
	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review.	Funding statement (p.19, line 826: no external funding)
Competing interests	26	Declare any competing interests of review authors.	Conflicts of Interest (p.19, lines 828)
Availability of data, code and other materials	27	Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review.	Not applicable (no analytic code; extracted case data summarized in Table 1, p.9).

PRIMSA Abstract Checklist

Topic	No.	Item	Reported?
TITLE			
Title	1	Identify the report as a systematic review.	Yes
BACKGROUND			
Objectives	2	Provide an explicit statement of the main objective(s) or question(s) the review addresses.	Yes
METHODS			
Eligibility criteria	3	Specify the inclusion and exclusion criteria for the review.	Yes
Information sources	4	Specify the information sources (e.g. databases, registers) used to identify studies and the date when each was last searched.	Yes
Risk of bias	5	Specify the methods used to assess risk of bias in the included studies.	No
Synthesis of results	6	Specify the methods used to present and synthesize results.	Yes
RESULTS			
Included studies	7	Give the total number of included studies and participants and summarise relevant characteristics of studies.	Yes
Synthesis of results	8	Present results for main outcomes, preferably indicating the number of included studies and participants for each. If meta-analysis was done, report the summary estimate and confidence/credible interval. If comparing groups, indicate the direction of the effect (i.e. which group is favoured).	Yes
DISCUSSION			
Limitations of evidence	9	Provide a brief summary of the limitations of the evidence included in the review (e.g. study risk of bias, inconsistency and imprecision).	No
Interpretation	10	Provide a general interpretation of the results and important implications.	Yes
OTHER			
Funding	11	Specify the primary source of funding for the review.	No
Registration	12	Provide the register name and registration number.	No

From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. MetaArXiv. 2020, September 14. DOI: 10.31222/osf.io/v7gm2. For more information, visit: www.prisma-statement.org

Supplementary Table S1. A detailed summary of the search strategy, including databases searched, keywords used, and the number of results retrieved from each source.

Database	Keywords Used	Number of Results Retrieved
PubMed/MEDLINE	("APS-1" OR "APECED" OR "autoimmune polyendocrine syndrome type 1" OR "autoimmune polyendocrinopathy candidiasis ectodermal dystrophy") AND ("cancer" OR "carcinoma" OR "squamous cell carcinoma" OR "neoplasm" OR "tumor" OR "malignancy")	114
Scopus	Same as above	310
Web of Science	Same as above	36
Manual screening	Reference lists of eligible studies and relevant reviews	1
Total (after deduplication)	–	396 (included for screening)