Supplementary Materials

Table S1. PRISMA checklist

Section and Topic	Item #	Checklist item	Location where item is reported
TITLE			
Title	1	Identify the report as a systematic review.	Page 1
ABSTRACT			
Abstract	2	See the PRISMA 2020 for Abstracts checklist.	Ok
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of existing knowledge.	Page 1,2
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses.	Page 2
METHODS			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.	Page 3
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.	Page 4
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used.	Page 4
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.	Page 5
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.	Page 5
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.	Page 5
	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.	Page 5
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.	Page 5
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.	Page 5
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)).	Page 4
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions.	Page 5
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses.	Page 5
	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.	Page 5
	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression).	Not applicable
	13f	Describe any sensitivity analyses conducted to assess robustness of the synthesized results.	Page 5
Reporting bias assessment	14	Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases).	Page 5

Certainty assessment	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome.	Page 5
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.	Pages 4 and 5
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded.	Page 4
Study characteristics	17	Cite each included study and present its characteristics.	Page 6
Risk of bias in studies	18	Present assessments of risk of bias for each included study.	Page 15 and supplementary table
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.	Pages 6-9
Results of syntheses	20a	For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies.	Pages 10-15
	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.	Pages 10-15
	20c	Present results of all investigations of possible causes of heterogeneity among study results.	Not applicable
	20d	Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results.	Pages 10-15
Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed.	Page 15 and supplementary table
Certainty of evidence	22	Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed.	Pages 10-15
DISCUSSION			
Discussion	23a	Provide a general interpretation of the results in the context of other evidence.	Pages 15-20
	23b	Discuss any limitations of the evidence included in the review.	Page 20
	23c	Discuss any limitations of the review processes used.	Page 20
	23d	Discuss implications of the results for practice, policy, and future research.	Page 21
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.	Page 3
	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared.	Page 3
	24c	Describe and explain any amendments to information provided at registration or in the protocol.	Page 3
Support	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review.	Page 21
Competing interests	26	Declare any competing interests of review authors.	Page 21
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.	Supplementary material

Table S2. Assessment of the quality of studies evaluated by the Mixed Methods Assessment Tool

Category of study designs	Methodological quality criteria	Responses			
		Yes	**No**	**Can't tell**	**Study**
Screening questions (for all types)	S1. Are there clear research questions?	✔			
	S2. Do the collected data allow addressing the research questions?	✔			
	Further appraisal may not be feasible or appropriate when the answer is 'No' or 'Can't tell' to one or both screening questions.				
1. Qualitative	1.1. Is the qualitative approach appropriate to answer the research question? 1.2. Are the qualitative data collection methods adequate to address the research question? 1.3. Are the findings adequately derived from the data? 1.4. Is the interpretation of results sufficiently substantiated by data? 1.5. Is there coherence between qualitative data sources, collection, analysis and interpretation?				
2. Quantitative randomized controlled trials	2.1. Is randomization appropriately performed?	✔			
	2.2. Are the groups comparable at baseline?	✔			
	2.3. Are there complete outcome data?	✔			44
	2.4. Are outcome assessors blinded to the intervention provided?				
	2.5 Did the participants adhere to the assigned intervention?	✔			
3. Quantitative non-randomized	3.1. Are the participants representative of the target population?	✔			
	3.2. Are measurements appropriate regarding both the outcome and intervention (or exposure)?	✔			22,23,24,25,26,27,28,29,30, 31,32,33,34,35,36,37,38,39, 40,41,42,43,45,46,47
	3.3. Are there complete outcome data?	✔			
	3.4. Are the confounders accounted for in the design and analysis?	✔			
	3.5. During the study period, is the intervention administered (or exposure occurred) as intended?	✔			
4. Quantitative descriptive	4.1. Is the sampling strategy relevant to address the research question? 4.2. Is the sample representative of the target population? 4.3. Are the measurements appropriate? 4.4. Is the risk of nonresponse bias low? 4.5. Is the statistical analysis appropriate to answer the research question?				

5. Mixed methods	5.1. Is there an adequate rationale for using a mixed methods design to address the research question?
	5.2. Are the different components of the study effectively integrated to answer the research question?
	5.3. Are the outputs of the integration of qualitative and quantitative components adequately interpreted?
	5.4. Are divergences and inconsistencies between quantitative and qualitative results adequately addressed?
	5.5. Do the different components of the study adhere to the quality criteria of each tradition of the methods involved?

Table S3. Modified Newcastle Ottawa Scale for Case-Control Studies and Cohort Studies

	Modified Newcastle Ottawa Scale for Case-Control Studies							
		Selection			Compatibility	Exposure		
Study ID	Case Definition	Representativeness of the Cases	Selection of Controls	Definition of Controls	Compatibility of Cases and Controls	Ascertainement of Exposure	Non-Response Rate	Total Score (0-9)
	Maximum: ☆	Maximum: ☆	Maximum: ☆	Maximum: ☆	Maximum: ☆☆	Maximum: ☆☆	Maximum: ☆	
Mullany et al. 2015	☆	☆	-	-	☆☆	☆☆	☆	☆☆☆☆☆☆
Hu et al. 2014	☆	☆	-	☆	☆	☆☆	-	☆☆☆☆☆
Simonian et al. 2019	☆	☆	☆	☆	☆☆	☆☆	-	☆☆☆☆☆☆☆☆
Salem et al. 2022	☆	☆	☆	-	☆	☆☆	-	☆☆☆☆☆☆
Radanova et al. 2021	☆	☆	☆	☆	☆	☆☆	-	☆☆☆☆☆☆☆
Ayadilord et al. 2020	☆	☆	☆	☆	☆	☆☆	-	☆☆☆☆☆☆☆
Xie et al. 2019	☆	☆	-	☆	☆☆	☆☆	-	☆☆☆☆☆☆☆
Zhu et al. 2019	☆	☆	☆	☆	☆	☆☆	-	☆☆☆☆☆☆☆
Chayeb et al. 2018	☆	-	-	☆	☆☆	☆☆	-	☆☆☆☆☆☆
Chen et al. 2018	☆	☆	-	☆	☆☆	☆☆	☆	☆☆☆☆☆☆☆☆
Ke et al. 2017	☆	☆	☆	-	☆	☆	-	☆☆☆☆☆
Jiang et al. 2017	☆	☆	-	☆	☆☆	☆☆	-	☆☆☆☆☆☆☆
Lee et al. 2016	☆	☆	☆	☆	☆☆	☆☆	☆	☆☆☆☆☆☆☆☆☆
Xicola et al. 2016	☆	☆	-	☆	☆☆	☆☆	-	☆☆☆☆☆☆☆
Kang et al. 2016	☆	☆	☆	-	☆	☆☆	-	☆☆☆☆☆☆
Ni et al. 2015	☆	☆	☆	-	☆☆	☆☆	☆	☆☆☆☆☆☆☆☆
Ding et al. 2015	☆	☆	☆	☆	☆	☆☆	-	☆☆☆☆☆☆☆
Cao et al. 2014	☆	☆	☆	-	☆☆	☆☆	-	☆☆☆☆☆☆☆
Chen et al. 2012	☆	☆	☆	-	☆☆	☆☆	-	☆☆☆☆☆☆☆
Ryan et al. 2012	☆	☆	☆	☆	☆☆	☆	-	☆☆☆☆☆☆☆
Zhan et al. 2011	☆	☆	☆	☆	☆	☆☆	-	☆☆☆☆☆☆☆
Landi et al. 2008	☆	☆	☆	☆	☆	☆☆	☆	☆☆☆☆☆☆☆☆

	Modified Newcastle Ottawa Scale for Cohort Studies								
		Selection			Compatibility	Exposure			
Study ID	Representativeness of the Cohort	Selection of the Non-Exposed Cohort	Ascertainement of Exposure	Presence of Result of interest	Compatibility of Cohorts	Ascertainement of Outcome	Folow-up Time	Adequacy of Monitoring	Total Score (0-9)
	Maximum: ☆	Maximum: ☆	Maximum: ☆	Maximum: ☆	Maximum: ☆☆	Maximum: ☆	Maximum: ☆	Maximum: ☆	
Huang et al. 2018	☆	-	☆	-	☆☆	☆	☆	-	☆☆☆☆☆☆
Kim et al. 2015	☆	-	☆	-	☆☆	☆	☆	-	☆☆☆☆☆☆
Smits et al. 2011	☆	☆	☆	☆	☆☆	☆	☆	☆	☆☆☆☆☆☆☆☆☆

Scores:
7–9 high methodological quality
4–6 high risk of bias
0–3 very high risk of bias