Supplemental Online Content

Ingrassia JP, Maqsood MH, Gelfand JM, et al. Cardiovascular and venous thromboembolic risk with JAK inhibitors in immune-mediated inflammatory skin diseases: a systematic review and meta-analysis. *JAMA Dermatol.* Published online November 1, 2023. doi:10.1001/jamadermatol.2023.4090

This supplemental material has been provided by the authors to give readers additional information about their work.

eTable. Cochrane risk of assessment bias

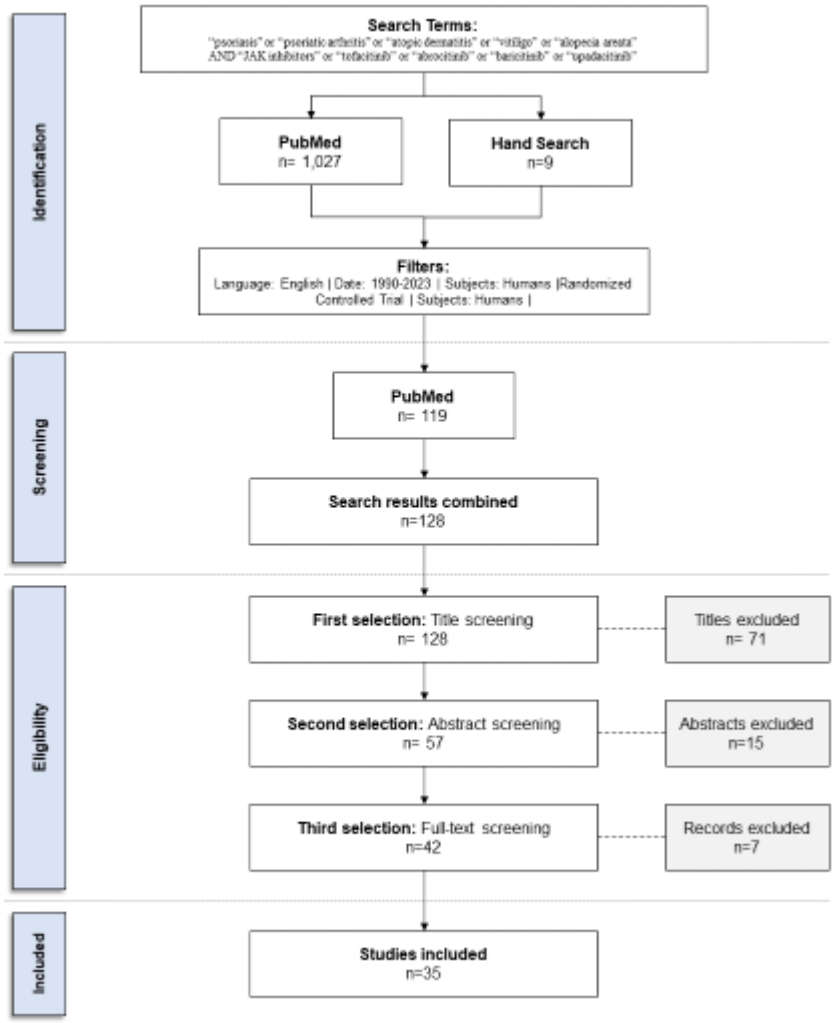
Trial	**Author (year)**	Selection Bias		Performance Bias	Detection Bias	Attrition Bias	Reporting Bias
		Random Sequence Generation	**Allocation concealment**	**Blinding participants**	**Blinding of outcome assessment**	**Unequal loss of follow-up**	**Selective reporting**
JADE MONO-1	Simpson et al (2020)	?	-	-	-	-	-
JADE-MONO-2	Silverberg et al (2020)	?	-	-	-	-	-
JADE Teen	Eichenfield et al (2021)	-	-	-	-	-	-
JADE DARE	Riech et al (2022)	-	-	-	-	-	-
JADE REGIMEN	Blauvelt et al (2021)	?	-	-	-	-	-
JADE Compare	Bieber et al (2021)	?	-	-	-	-	-
Heads Up	Blauvelt et al (2021)	?	-	-	-	-	-
Measure Up 1	Guttman-Yassky et al (2021)	?	-	-	-	-	-
Measure Up 2	Guttman-Yassky et al (2021)	?	-	-	-	-	-
AD Up	Reich et al (2021)	?	-	-	-	-	-
Rising Up	Katoh et al (2022)	?	-	-	-	-	-

BREEZE-AD1	Simpson et al (2020)	?	-	-	-	-	-
BREEZE-AD2	Simpson et al (2020)	?	-	-	-	-	-
BREEZE-AD4	Bieber et al (2022)	?	-	-	-	-	-
BREEZE AD5	Simpson et al (2021)	?	-	-	-	-	-
BREEZE-AD7	Reich et al (2020)	?	-	-	-	-	-
BREEZE-AD-PEDS	Torrelo et al (2023)	?	-	-	-	-	-
TRuE-AD1	Papp et al (2021)	-	-	-	-	-	-
TRuE-AD2	Papp et al (2021)	-	-	-	-	-	-
BRAVE-AA1	King et al (2022)	-	-	-	-	-	-
BRAVE-AA2	King et al (2022)	-	-	-	-	-	-
	Bachelez et al (2015)	-	-	-	-	-	-
OPT Pivotal 1	Papp et al (2015)	-	-	-	-	-	-
OPT Pivotal 2	Papp et al (2015)	-	-	-	-	-	-
	Zhang et al (2017)	?	-	-	-	-	-
SELECT-PSA 1	McInnes et al (2021)	?	-	-	-	-	
SELECT-PSA 2	Mease et al (2021)	?	-	-	-	-	-
Opal Broaden	Mease et al (2017)	-	-	-	-	-	-

OPAL Beyond	Gladman et al (2017)	-	-	-	-	-	-
	Leng et al (2023)	-	-	-	-	-	-
TRuE-V1	Rosmarin et al (2022)	-	-	-	-	-	-
TRuE-V2	Rosmarin et al (2022)	-	-	-	-	-	-
ALLEGRO-2b/3	*Not published yet*	?	-	-	-	-	-
Peds: Part 1	Nakagawa et al (2021)	?	-	-	-	-	-
Adults: QBA4-1	Nakagawa et al (2020)	?	-	-	-	-	-

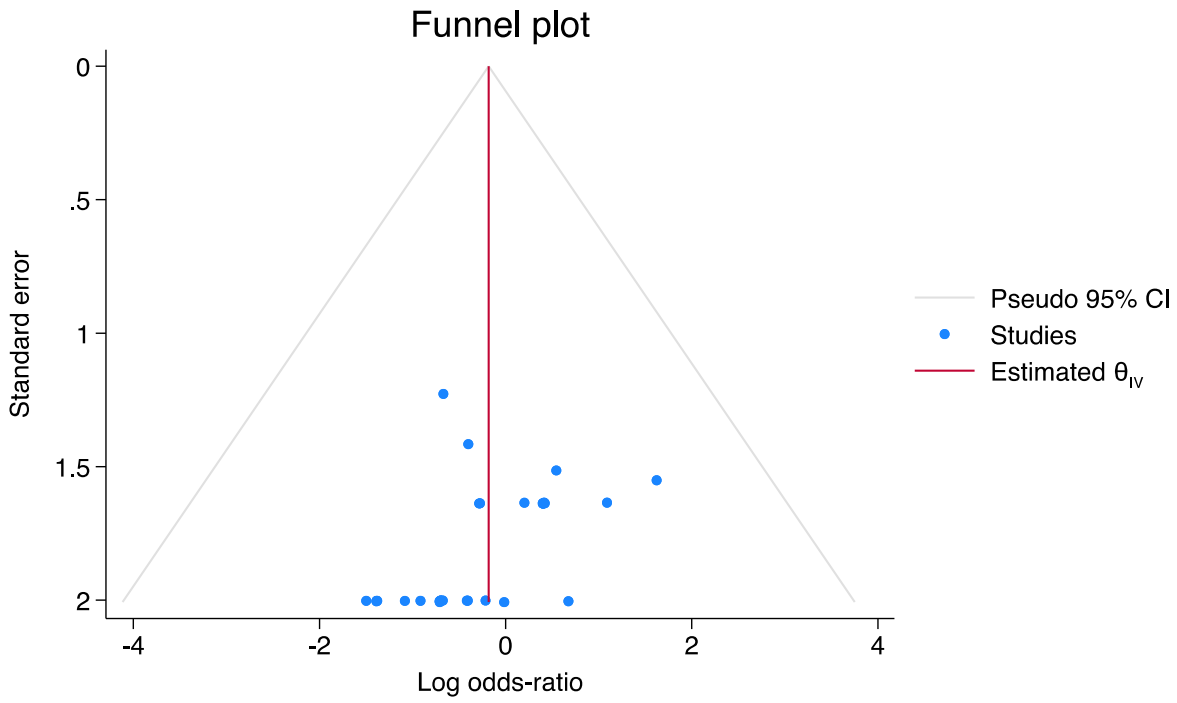
Keys: **-** No risk of bias, + risk of bias, **?** unknown risk of bias

eFigure 1. PRISMA flow

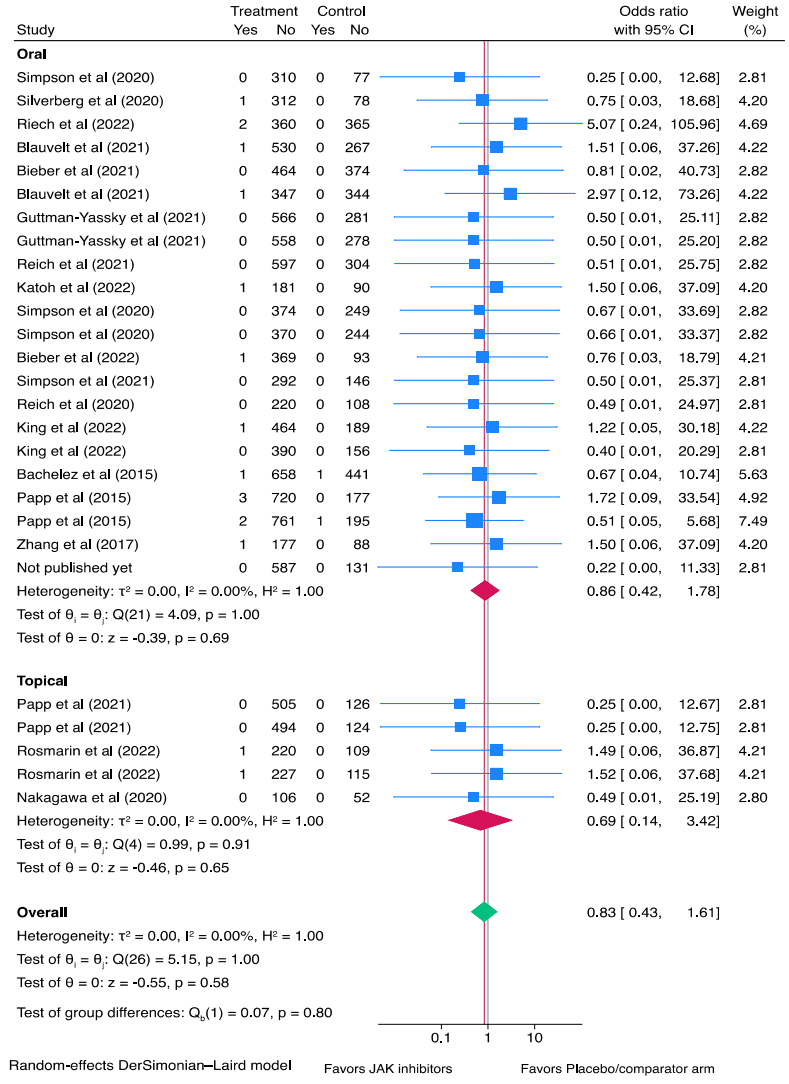


eFigure 2. Effect of JAK inhibitors on composite of MACE and all-cause mortality (primary analysis). Panel A: funnel plot; Panel B sensitivity analysis by exclusion of pediatric trials based on oral vs topical JAK inhibitor; Panel C: sensitivity analysis by exclusion of pediatric trials based on type of IMID

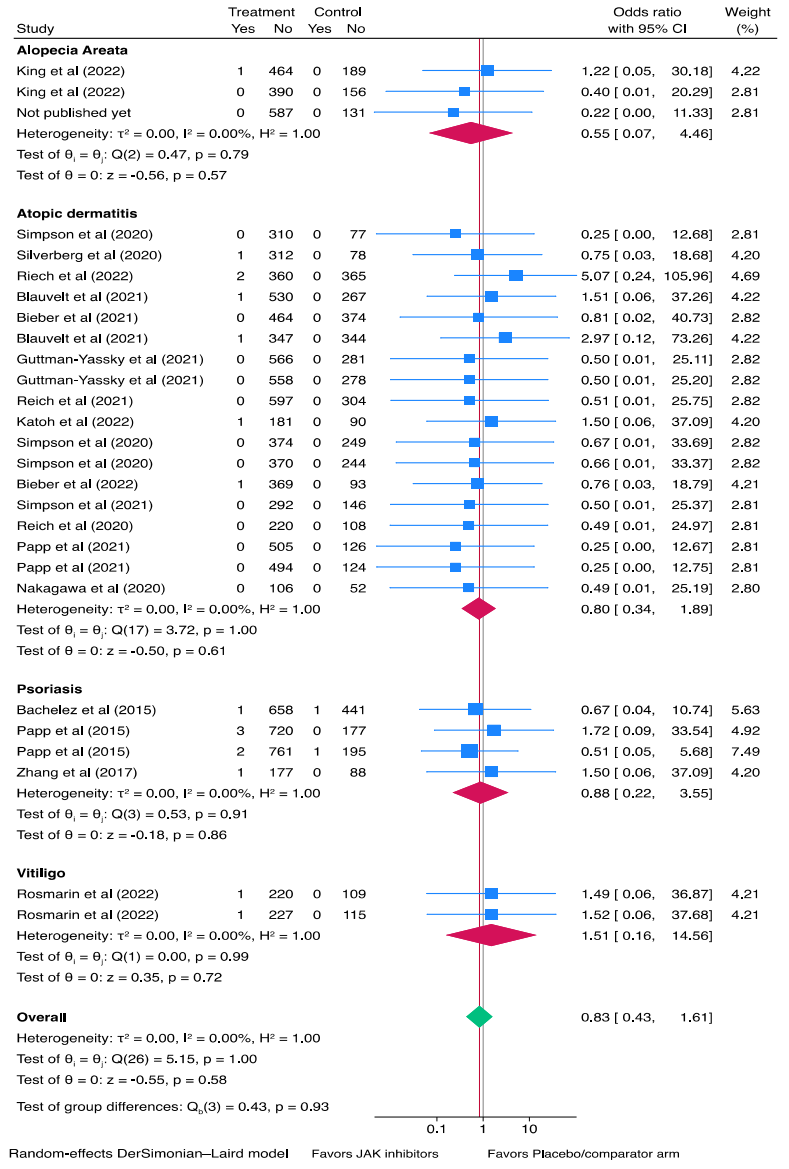
Panel A



Panel B



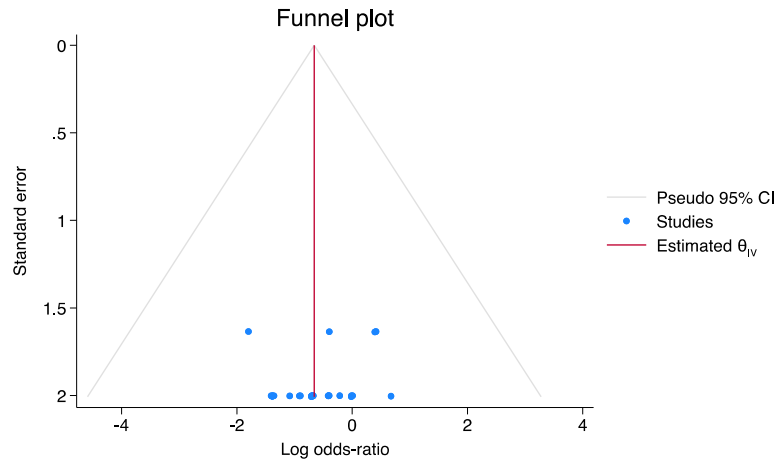
Panel C



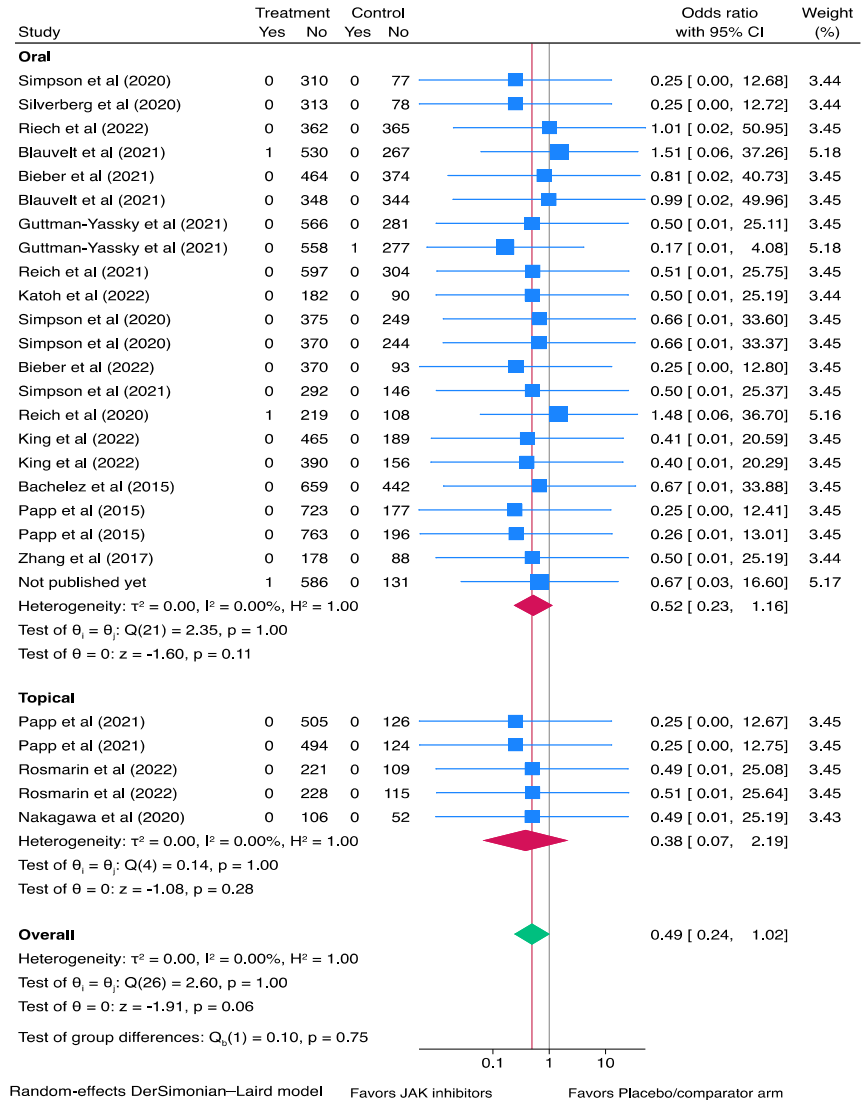
eFigure 3. Effect of JAK inhibitors on VTE (primary analysis).

Panel A: funnel plot; Panel B sensitivity analysis by exclusion of pediatric trials based on oral vs topical JAK inhibitor; panel C: sensitivity analysis by exclusion of pediatric trials based on type of IMID

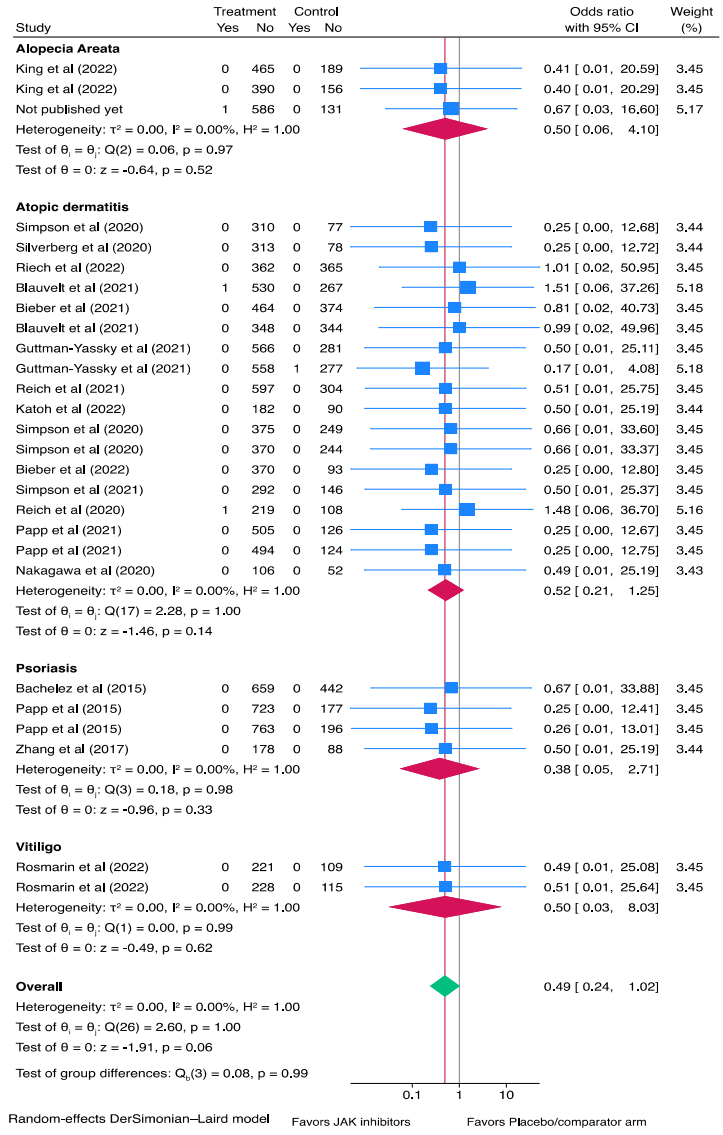
Panel A



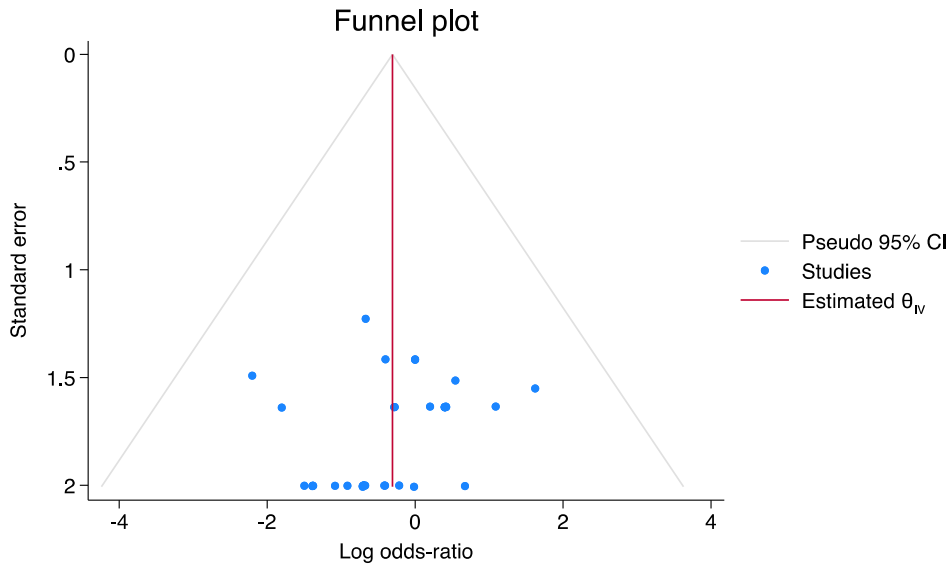
Panel B



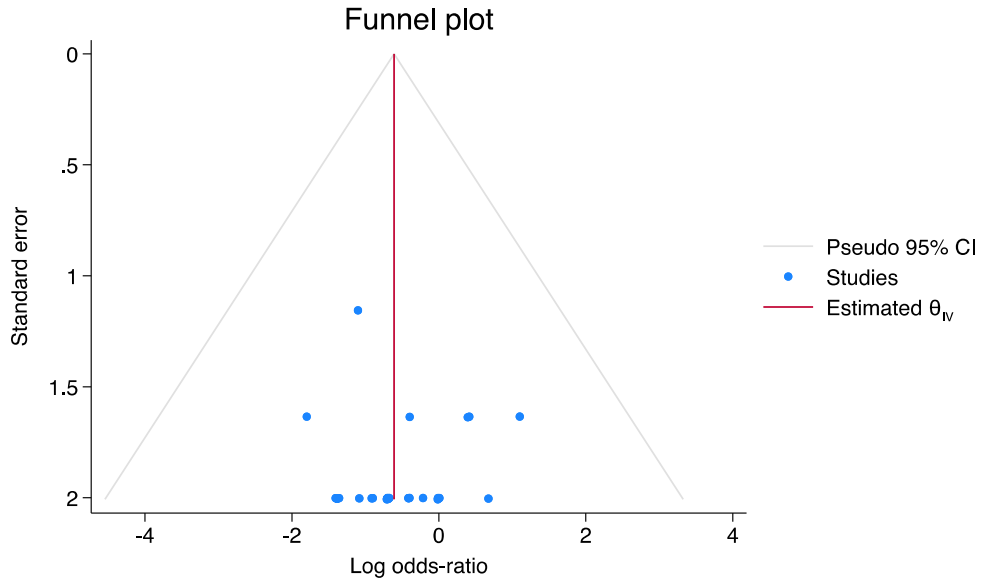
Panel C



eFigure 4. Funnel plot. Effect of JAK inhibitors on composite of MACE and all-cause mortality (secondary analysis).



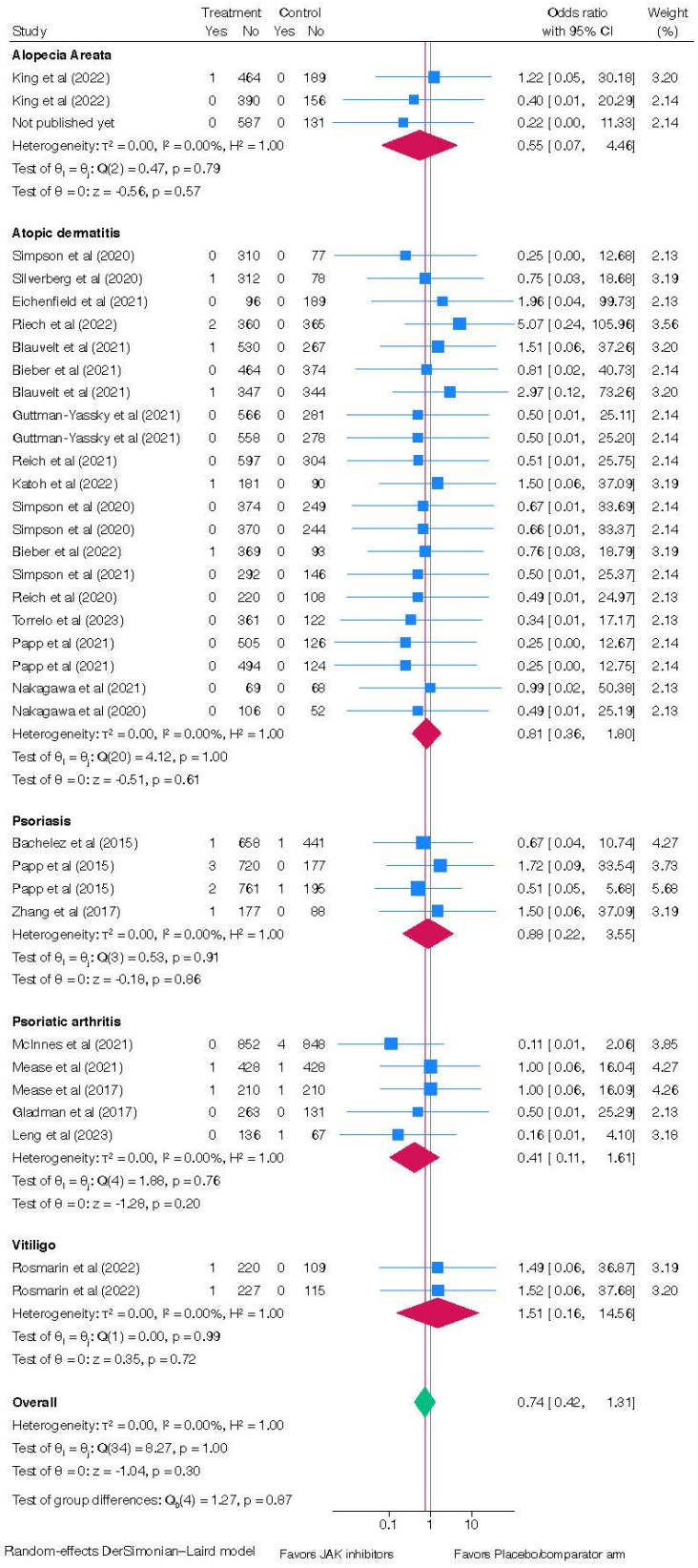
eFigure 5. Funnel plot. Effect of JAK inhibitors on VTE (secondary analysis).



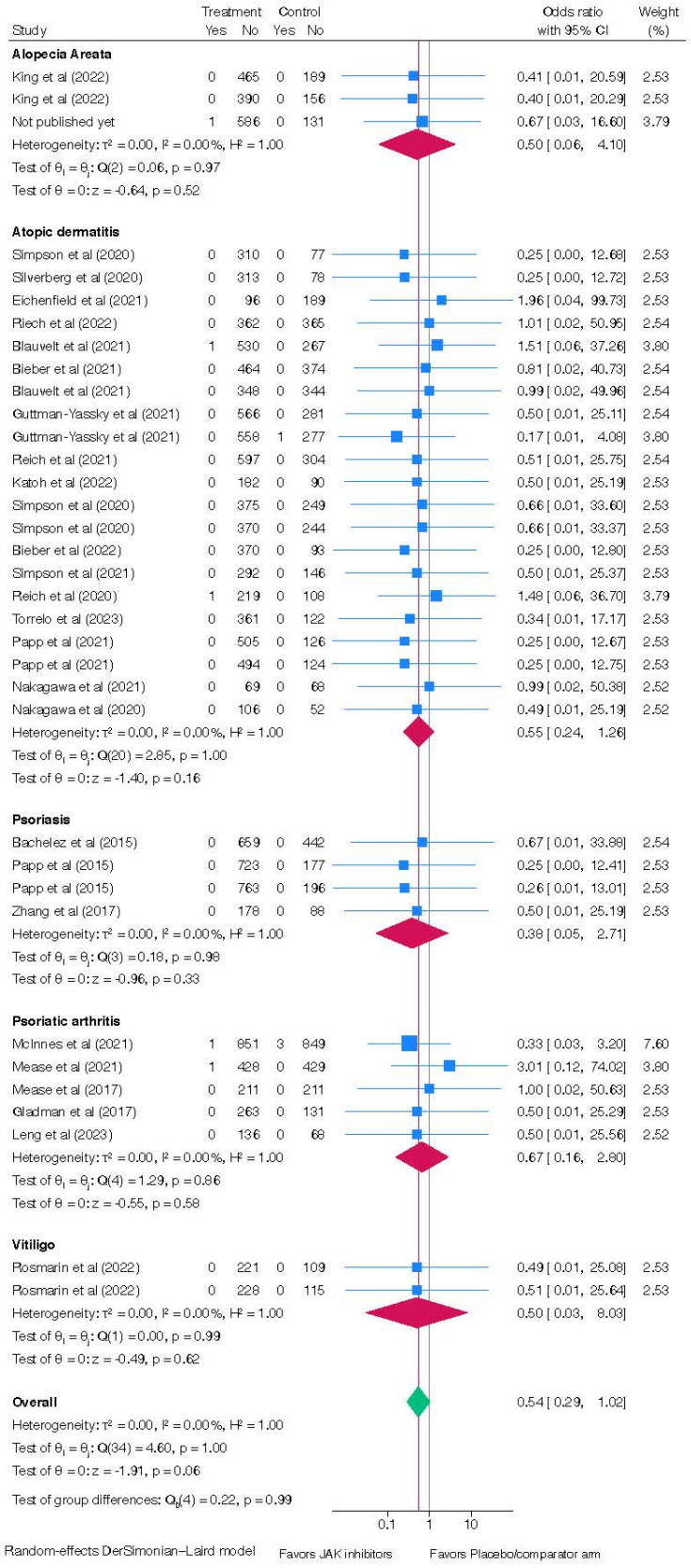
eFigure 6. Secondary analysis. Panel A: Composite of MACE and all-cause mortality with JAK inhibitors including psoriatic arthritis trials. Panel B: composite of VTE with JAK inhibitors including psoriatic arthritis trials.

Abbreviations: MACE: major adverse cardiac events; VTE: venous thromboembolism.

Panel A



Panel B



eAppendix. PRISMA checklist

3.1 PRISMA Checklist

Section/topic	#	Checklist item	Reported on page #
TITLE			
Title	1	Identify the report as a systematic review, meta-analysis, or both.	1
ABSTRACT			
Structured summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	3
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known.	4
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	4
METHODS			
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.	
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	5
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	5
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	5
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	5
Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	%
Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	5

Risk of bias in individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	6
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means).	6
Synthesis of results	14	Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I^2) for each meta-analysis.	6
Risk of bias across studies	15	Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).	6
Additional analyses	16	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.	6
RESULTS			
Study selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.	7
Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.	&
Risk of bias within studies	19	Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12).	7
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot.	7
Synthesis of results	21	Present results of each meta-analysis done, including confidence intervals and measures of consistency.	7
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies (see Item 15).	7
Additional analysis	23	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).	7,8,9
DISCUSSION			
Summary of evidence	24	Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers).	9
Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias).	10
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	11

FUNDING			
Funding	27	Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.	1

From: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(7): e1000097. doi:10.1371/journal.pmed1000097

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