PRISMA 2009 Checklist

Risk of smoking relapse with the use of electronic cigarettes: a systematic review with meta-analysis of longitudinal studies

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.	2
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known.	4-5
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	5
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.	5
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, suppl mat (TS1)
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).	6
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.	6
Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	6
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).	7

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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.	7

Section/topic	#	Checklist item	Reported on page #
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).	13 (limitation)
Additional analyses	16	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.	7
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 (figure 1)
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.	7-9 (tables 1,2)
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).	8 (table 1)
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.	Figure 2, suppl mat (FS1)
Synthesis of results	21	Present results of each meta-analysis done, including confidence intervals and measures of consistency.	9, 10, Figure 2, suppl mat (FS1)
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies (see Item 15).	8, 13
Additional analysis	23	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).	9, 10
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).	11-13
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).	13
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	10-13, 14

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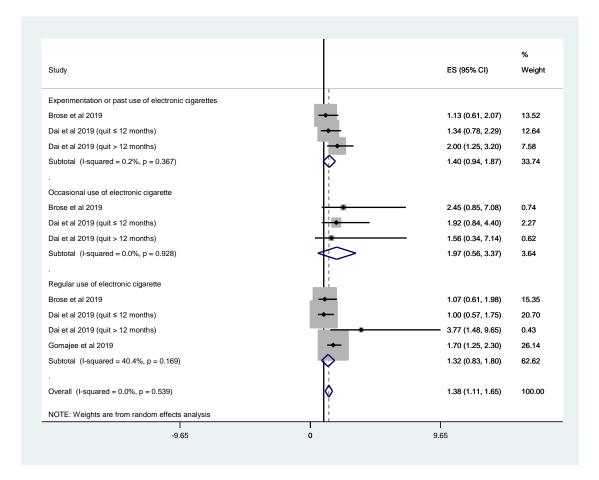| FUNDING			
Funding	27	Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.	15

For more information, visit: **www.prisma-statement.org**.

SUPPLEMENTARY MATERIAL

Table S1. Search strategy and number of references retrieved from each database

Database	Search strategy	N
PubMed	((Electronic Cigarettes[mh] OR Electronic Nicotine Delivery Systems[mh] OR Vaping[mh] OR electronic cigarette*[tiab] OR e-cig*[tiab] OR vaping[tiab] OR vape*[tiab] OR electronic smoking device*[tiab] OR e-smok*[tiab] OR Electronic vaping device*[tiab] OR electronic nicotine delivery device*[tiab] OR Electronic Nicotine Delivery System*[tiab] OR IQOS[tiab] OR heated tobacco[tiab] OR JUUL[tiab] OR shisha-pen vapor[tiab] OR e-hookah*[tiab] OR e-vap*[tiab] OR Heat-Not-Burn Tobacco Products[tiab]) AND (Ex-Smokers[mh] OR Ex-Smoker*[tiab] OR Exsmoker*[tiab] OR Former smok*[tiab] OR Recurrence[mh] OR Recurrence[tiab] OR Relapse[mh] OR Relapse[tiab]))	322
EMBASE	('electronic cigarette'/exp OR 'e cigarette':ti,ab OR 'e cigarettes':ti,ab OR 'electronic cigarette':ti,ab OR 'electronic cigarettes':ti,ab OR 'electronic nicotine delivery system':ti,ab OR 'electronic nicotine delivery systems':ti,ab OR 'vaping'/exp OR 'e-cigarette smoking':ti,ab OR 'electronic cigarette smoking':ti,ab OR 'vaping':ti,ab OR 'electronic nicotine delivery device*':ti,ab OR 'e cig*':ti,ab OR vape*:ti,ab OR 'electronic smoking device*':ti,ab OR 'e smok*':ti,ab OR 'electronic vaping device*':ti,ab OR iqos:ti,ab OR juul:ti,ab OR 'heated tobacco':ti,ab OR 'shisha-pen vapor':ti,ab OR 'e hookah*':ti,ab OR 'e vap*':ti,ab OR 'heat-not-burn tobacco product*':ti,ab) AND ('ex smoker'/exp OR 'ex-smoker':ti,ab OR 'ex-smokers':ti,ab OR 'exsmoker':ti,ab OR 'exsmokers':ti,ab OR 'former smoker':ti,ab OR 'former smokers':ti,ab OR exsmoker*:ti,ab OR 'relapse'/exp OR 'relapse':ti,ab OR recurrence:ti,ab) AND [embase]/lim NOT ([embase]/lim AND [medline]/lim)	160
PsycInfo	(("Electronic Cigarettes" OR "Electronic Nicotine Delivery Systems" OR Vaping OR "electronic cigarette" OR e-cig* OR vaping OR vape* OR "electronic smoking device" OR e-smok* OR "Electronic vaping device" OR "electronic nicotine delivery device" OR "Electronic Nicotine Delivery System" OR IQOS OR "heated tobacco" OR JUUL OR "shisha-pen vapor" OR e-hookah* OR e-vap* OR "Heat-Not-Burn Tobacco Products") AND ("Ex-Smokers" OR "Ex-Smoker" OR Exsmoker* OR "Former smoker" OR "Former smokers" OR Relapse))	140
LILACS/BVS	(tw:("electronic cigarettes" OR e-cig* OR "electronic smoking devices" OR vaping* OR "electronic nicotine delivery systems" OR "electronic nicotine delivery devices" OR e-smok* OR IQOS OR "heated tobacco" OR JUUL OR "shisha-pen vapor" OR "e-hookah" OR vaping OR e-vap* OR vape* OR "Heat-Not-Burn Tobacco Products" OR "cigarro eletronico" OR "dispositivo eletronico de fumar" OR "dispositivo eletronico de distribuicao de nicotina" OR "sistemas eletronicos de liberacao de nicotina" OR "tabaco aquecido" OR "cigarrillos electronicos" OR "cigarrillo electronico" OR "dispositivo electronico para fumar" OR "dispositivo electronico de nicotina" OR "sistemas electronicos de liberacion de nicotina" OR "tabaco calentado")) AND (tw:("Ex-Smoker" OR "Ex-Smokers" OR Exsmoker* OR "Former smoker" OR "Former smokers" OR "Ex-fumante" OR "Ex-fumantes" OR "Ex-fumador" OR "Ex-fumadores" OR Reccurence OR Recorrencia OR Recurrencia OR Relapse OR Recaida)) AND (db:("LILACS"))	10
Total		632

Figure S1. Meta-analysis of the adjusted effect measures of smoking relapse associated with electronic cigarette use (experimentation or past use, current occasional use and current regular use)