The Meta-analysis of Observational Studies in Epidemiology (MOOSE) protocol checklist

Criteria		Brief description of how the criteria were handled in the meta-analysis
Reporting of background should include		
√	Problem definition	A history of diabetes mellitus (DM) has been linked to increased risk of ovarian cancer (OC), but the results have not been consistent. The aim of this study was to clarify this association.
√	Hypothesis statement	DM increases the risk of OC.
√	Description of study outcomes	OC
√	Type of exposure or intervention used	DM
√	Type of study designs used	Observational studies: cohort and case-control studies.
√	Study population	No restriction.
Reporting of search strategy should include		
√	Qualifications of searchers	ZL (first author) and WHL have published a meta-analysis in Critical care in 2017 (with experience of literature search).
√	Search strategy, including time period included in the synthesis and keywords	PubMed from 1965 –April 2020 EMBASE from 1974 –April 2020 Cochrane library databases 1974 –April 2020 See additional file 2 the search strategy and search results.
√	Databases and registries searched	PubMed, Embase and the Cochrane library databases
√	Search software used, name and version, including special features	No search software is being used. The process of retrieving citations and eliminating the duplications was used by EndNote software.
√	Use of hand searching	The potentially eligible bibliographies of relevant articles were manually examined to identify any additional publications relevant to our study.
√	List of citations located and those excluded, including justifications	The literature search process is given in flow diagram.
√	Method of addressing articles published in languages other than English	Through a translation app or consult professionals.
√	Method of handling abstracts and unpublished studies	Not applicable
√	Description of any contact with authors	Not applicable

Reporting of methods should include		
√	Description of relevance or appropriateness of studies assembled for assessing the hypothesis to be tested	Detailed inclusion and exclusion criteria were also given in our study.
√	Rationale for the selection and coding of data	The PICO framework
√	Assessment of confounding	Sensitivity analyses
√	Assessment of study quality, including blinding of quality assessors; stratification or regression on possible predictors of study results	The Newcastle-Ottawa Scale (NOS) score
√	Assessment of heterogeneity	The statistical heterogeneity was measured by χ^2 (threshold p=0·10) and quantified by the I^2 statistic.
√	Description of statistical methods in sufficient detail to be replicated	The details refer to the "Statistical analysis" in our study.
√	Provision of appropriate tables and graphics	We included 1 box detailing the terms used for database search, 1 flow chart,1 summary table, 1 forest plot of all studies, 1 forest plot to examine effect modification by age, 1 table of sensitivity analyses.
Reporting of results should include		
√	Graph summarizing individual study estimates and overall estimate	Figure 2
√	Table giving descriptive information for each study included	Table 1
√	Results of sensitivity testing	Additional file 4
√	Indication of statistical uncertainty of findings	For more details refer to the The pooled effects were analyzed by relative risk (RR) with 95% confidence interval, and the statistical heterogeneity was measured by χ^2 (threshold p=0·10) and quantified by the I^2 statistic.
Reporting of discussion should include		
√	Quantitative assessment of bias	The cumulative meta-analysis and sensitivity analysis showed pooled effect was stable and reliable.
√	Justification for exclusion	The exclusion criteria in this meta-analysis were: randomized controlled trial, case reports, letters, reviews or animals studies.
√	Assessment of quality of	No apparent publication bias was identified in this

	included studies	meta-analysis.
Reporting of conclusions should include		
√	Consideration of alternative explanations for observed results	Significant heterogeneity between these studies was observed.
√	Generalization of the conclusions	Women with history of DM have a higher risk of OC than those who without.
√	Guidelines for future research	Further high-quality studies with prospective design that are adequately controlled for potential confounding factors and verified the association with subtypes of OC should be conducted to identify our results.
√	Disclosure of funding source	This research received no specific grant from any funding agency.

Systematic reviews and meta-analyses (PRISMA) guidelines

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.	1
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known.	1,2
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	2
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.	2
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.	2
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.	2
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	2
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).	2
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.	2

Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	
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.	2
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means).	2
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.	2

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).	2
Additional analyses	16	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.	2
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.	4
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.	4
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).	5
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.	5
Synthesis of results	21	Present results of each meta-analysis done, including confidence intervals and measures of consistency.	5
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies (see Item 15).	5
Additional analysis	23	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).	5,6

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).	6
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).	8
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	8
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.	None

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