

Systematic review

1. * Review title.

Give the working title of the review, for example the one used for obtaining funding. Ideally the title should state succinctly the interventions or exposures being reviewed and the associated health or social problems. Where appropriate, the title should use the PI(E)COS structure to contain information on the Participants, Intervention (or Exposure) and Comparison groups, the Outcomes to be measured and Study designs to be included.

Does Coffee, Tea and Caffeine Consumption Reduce the Incidence Risk of Breast Cancer? A systematic Review and Bayesian Network Meta-analysis

2. Original language title.

For reviews in languages other than English, this field should be used to enter the title in the language of the review. This will be displayed together with the English language title.

3. * Anticipated or actual start date.

Give the date when the systematic review commenced, or is expected to commence.

10/02/2020

4. * Anticipated completion date.

Give the date by which the review is expected to be completed.

26/05/2020

5. * Stage of review at time of this submission.

Indicate the stage of progress of the review by ticking the relevant Started and Completed boxes. Additional information may be added in the free text box provided.

Please note: Reviews that have progressed beyond the point of completing data extraction at the time of initial registration are not eligible for inclusion in PROSPERO. Should evidence of incorrect status and/or completion date being supplied at the time of submission come to light, the content of the PROSPERO record will be removed leaving only the title and named contact details and a statement that inaccuracies in the stage of the review date had been identified.

This field should be updated when any amendments are made to a published record and on completion and publication of the review. If this field was pre-populated from the initial screening questions then you are not able to edit it until the record is published.

The review has not yet started: No

Review stage	Started	Completed
Preliminary searches	Yes	No
Piloting of the study selection process	Yes	No
Formal screening of search results against eligibility criteria	Yes	No
Data extraction	No	No
Risk of bias (quality) assessment	No	No
Data analysis	No	No

Provide any other relevant information about the stage of the review here (e.g. Funded proposal, protocol not yet finalised).

6. * Named contact.

The named contact acts as the guarantor for the accuracy of the information presented in the register record.

Yingshi Zhang

Email salutation (e.g. "Dr Smith" or "Joanne") for correspondence:

Dr Zhang

7. * Named contact email.

Give the electronic mail address of the named contact.

zhangyingshi526@163.com, 104040309@syphu.edu.cn

8. Named contact address

Give the full postal address for the named contact.

Department of Clinical Pharmacy, Shenyang Pharmaceutical University, Shenyang, 110016, China.

9. Named contact phone number.

Give the telephone number for the named contact, including international dialling code.

+86 18842396318

10. * Organisational affiliation of the review.

Full title of the organisational affiliations for this review and website address if available. This field may be completed as 'None' if the review is not affiliated to any organisation.

Shenyang Pharmaceutical University

Organisation web address:

11. * Review team members and their organisational affiliations.

Give the personal details and the organisational affiliations of each member of the review team. Affiliation

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refers to groups or organisations to which review team members belong. **NOTE: email and country are now mandatory fields for each person.**

Dr Yingshi Zhang. Shenyang Pharmaceutical University
Dr Shu Wang. Shenyang Pharmaceutical University

12. * Funding sources/sponsors.

Give details of the individuals, organizations, groups or other legal entities who take responsibility for initiating, managing, sponsoring and/or financing the review. Include any unique identification numbers assigned to the review by the individuals or bodies listed.

None

Grant number(s)

13. * Conflicts of interest.

List any conditions that could lead to actual or perceived undue influence on judgements concerning the main topic investigated in the review.

None

14. Collaborators.

Give the name and affiliation of any individuals or organisations who are working on the review but who are not listed as review team members. **NOTE: email and country are now mandatory fields for each person.**

15. * Review question.

State the question(s) to be addressed by the review, clearly and precisely. Review questions may be specific or broad. It may be appropriate to break very broad questions down into a series of related more specific questions. Questions may be framed or refined using PI(E)COS where relevant.

The object of our current research was that to determine the most suitable population and recommended daily dosage intake for coffee and tea, so that it can be used to effectively prevent BC which could also

Patients: women in the population: coffee and/or tea intake; Control: none-coffee/tea intake; Outcome: incident of breast cancer,

16. * Searches.

State the sources that will be searched. Give the search dates, and any restrictions (e.g. language or publication period). Do NOT enter the full search strategy (it may be provided as a link or attachment.)

We searched PubMed, Embase, and the Cochrane Library of studies to identify potentially eligible publications which published in recent 30 years until April, 2020 with original search terms of coffee or tea for risk of breast cancer and breast carcinoma with no language restrictions were employed (see details in Table S1). Eligible studies were evaluated coffee and/or tea consumption for the incident risk of breast cancer with their MeSH terms. Manual searches using public reference list of each potentially studies were also conducted. For potentially publications, either coffee or tea consumption for the incident risk of breast cancer, either studies comparison of dose-response correlations or studies compared with non-coffee and tea group, and either case-controlled studies and prospective cohort studies were included.

17. URL to search strategy.

Give a link to a published pdf/word document detailing either the search strategy or an example of a search strategy for a specific database if available (including the keywords that will be used in the search strategies), or upload your search strategy. Do NOT provide links to your search results.

None

Alternatively, upload your search strategy to CRD in pdf format. Please note that by doing so you are consenting to the file being made publicly accessible.

Do not make this file publicly available until the review is complete

18. * Condition or domain being studied.

Give a short description of the disease, condition or healthcare domain being studied. This could include health and wellbeing outcomes.

Breast cancer (BC) is the major frequently diagnosed cancer in women worldwide with the secondary leading cause of death, while now in the 21st century, malignancy is expected to be the primary barrier to increasing life expectancy and the capital death in each country and region. Even though the 5-year recurrence rate of BC patients is not high, patients with BC need long-term medication and regular examination, and the sensitivity of chemotherapy and radiotherapy is poor when the tumor recurs, accompanied by high mortality. So we look forward to preventing the incident of BC through therapeutic lifestyle changes, which including coffee and tea. Coffee is generally divided into regular coffee and decaffeinated coffee, and tea is mainly divided into three types: green tea, black tea and oolong tea, which were the most popular drinks worldwide. Recently, some of researches have been reported there was relationship between coffee and/or tea intake with tumorigenesis, such as BC. The object of our current research was that to determine the most suitable population and recommended daily dosage intake for coffee and tea, so that it can be used to effectively prevent BC which could also assist in clinical therapeutic.

19. * Participants/population.

Give summary criteria for the participants or populations being studied by the review. The preferred format includes details of both inclusion and exclusion criteria.

Normal women, coffee and tea intake or not.

20. * Intervention(s), exposure(s).

Give full and clear descriptions or definitions of the nature of the interventions or the exposures to be reviewed.

Considered the dose-response relationship between coffee/tea consumption and incident risk of recurrence or new primary breast cancer

21. * Comparator(s)/control.

Where relevant, give details of the alternatives against which the main subject/topic of the review will be compared (e.g. another intervention or a non-exposed control group). The preferred format includes details of both inclusion and exclusion criteria.

No coffee/tea intake or low coffee/tea intake.

22. * Types of study to be included.

Give details of the types of study (study designs) eligible for inclusion in the review. If there are no restrictions on the types of study design eligible for inclusion, or certain study types are excluded, this should be stated. The preferred format includes details of both inclusion and exclusion criteria.

Case-controlled studies and prospective cohort studies

23. Context.

Give summary details of the setting and other relevant characteristics which help define the inclusion or exclusion criteria.

24. * Main outcome(s).

Give the pre-specified main (most important) outcomes of the review, including details of how the outcome is defined and measured and when these measurement are made, if these are part of the review inclusion criteria.

The incident risk of breast cancer.

* Measures of effect

Please specify the effect measure(s) for you main outcome(s) e.g. relative risks, odds ratios, risk difference, and/or 'number needed to treat.

Hazard ratio (HR) with their 95% confidence interval (CI) from effect size data and odds ratio (OR) with their 95%CI from dichotomous data

25. * Additional outcome(s).

List the pre-specified additional outcomes of the review, with a similar level of detail to that required for main outcomes. Where there are no additional outcomes please state 'None' or 'Not applicable' as appropriate to the review

None

* Measures of effect

Please specify the effect measure(s) for you additional outcome(s) e.g. relative risks, odds ratios, risk difference, and/or 'number needed to treat.

None

26. * Data extraction (selection and coding).

Describe how studies will be selected for inclusion. State what data will be extracted or obtained. State how this will be done and recorded.

The extracted data were extracted using protested charts, baseline data and incidence risk of BC were both extracted. For studies which comparison of dose-response correlations, the baseline data were used by the highest dose and the lowest dose of coffee or tea consumption, while the baseline data of studies which compared with non-coffee and tea group were extracted from regular coffee/tea group versus non-coffee/tea group. Additionally, the data of incident risk of BC were extracted from both non-adjusted and adjusted

values for effect size, and the most adjusted values for effect size of were marked. Moreover, dichotomous outcomes of incident BC were also been extracted from all available studies.

27. * Risk of bias (quality) assessment.

Describe the method of assessing risk of bias or quality assessment. State which characteristics of the studies will be assessed and any formal risk of bias tools that will be used.

We used the Newcastle-Ottawa Scale to assess risk of bias of both prospective cohort studies and case-controlled studies, NOS score above 4 was considered acceptable quality, above 7 was considered as high quality.

28. * Strategy for data synthesis.

Provide details of the planned synthesis including a rationale for the methods selected. This **must not be generic text** but should be **specific to your review** and describe how the proposed analysis will be applied to your data.

In our systematic review and Bayesian network meta-analysis, we mainly considered the dose-response relationship between coffee/tea consumption and incident risk of recurrence or new primary breast cancer. We preset 0-2 cups/day coffee or tea intake as low consumption, 3-4 cups/day coffee or tea intake as moderate consumption, >5 cups/day coffee or tea intake as high consumption, not mentioned dose as regulate consumption. To determine the most suitable participant for coffee or tea consumption, we also regarded the difference in coffee type, menopause status, hormone receptor and BMI index for subgroup analyses and meta-regressions. Additionally, to determine the best recommended dose of caffeine intake (which from coffee or tea), we performed a Bayesian random-effects network meta-analysis by four chains with 100000 iterations after an initial burnin of 10 000 and a thinning of 2.5. We calculated the HR and OR and corresponding 95% credible intervals (CrI), and mean rank and surface under the cumulative ranking curve (SUCRA) values were produced from network meta-analysis estimates with consistency model. All of the above analyses

Analyses hazard ratio (HR) with their 95% confidence interval (CI) from effect size data and odds ratio (OR) with their 95%CI from dichotomous data, pairwise meta-analyses for heterogeneity test were conducted when I² statistic was found to be more than 25% or p value as detected to be less than 0.05, and regardless of the results of heterogeneity test, random effects models were applied for accurate. Besides, p value for the source of heterogeneity of 0. 05 from meta-regression. Moreover, publication bias were assessed with Begger's test and Egger's test with less than 0.05 means publication bias existed. Correlation coefficients were obtained from the average of available correlation coefficients per result.

29. * Analysis of subgroups or subsets.

State any planned investigation of 'subgroups'. Be clear and specific about which type of study or participant will be included in each group or covariate investigated. State the planned analytic approach.

To determine the most suitable participant for coffee or tea consumption, we also regarded the difference in coffee type, menopause status, hormone receptor and BMI index for subgroup analyses and meta-regressions. Additionally, to determine the best recommended dose of caffeine intake (which from coffee or tea), we performed a Bayesian random-effects network meta-analysis by four chains with 100000 iterations after an initial burnin of 10 000 and a thinning of 2.5. We calculated the HR and OR and corresponding 95% credible intervals (CrI), and mean rank and surface under the cumulative ranking curve (SUCRA) values were produced from network meta-analysis estimates with consistency model. All of the above analyses

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were performed with StataMP version 14.0 and WinBUGS version 1.4.3.

30. * Type and method of review.

Select the type of review and the review method from the lists below. Select the health area(s) of interest for your review.

Type of review

Cost effectiveness

No

Diagnostic

No

Epidemiologic

Yes

Individual patient data (IPD) meta-analysis

No

Intervention

Yes

Meta-analysis

Yes

Methodology

No

Narrative synthesis

No

Network meta-analysis

No

Pre-clinical

No

Prevention

Yes

Prognostic

No

Prospective meta-analysis (PMA)

No

Review of reviews

No

Service delivery

No

Synthesis of qualitative studies

No

Systematic review

Yes

Other

No

Health area of the review

Alcohol/substance misuse/abuse

No

Blood and immune system

No

Cancer

Yes

Cardiovascular

No

Care of the elderly

No

Child health

No

Complementary therapies

No

Crime and justice

No

Dental

No

Digestive system

No

Ear, nose and throat

No

Education

No

Endocrine and metabolic disorders

No

Eye disorders

No

General interest

No

Genetics

No

Health inequalities/health equity

No

Infections and infestations

No

International development

No

Mental health and behavioural conditions

No

Musculoskeletal

No

Neurological

No

Nursing

No

Obstetrics and gynaecology

No

Oral health

No

Palliative care

No

Perioperative care

No

Physiotherapy

No

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Pregnancy and childbirth

No

Public health (including social determinants of health)

No

Rehabilitation

No

Respiratory disorders

No

Service delivery

No

Skin disorders

No

Social care

No

Surgery

No

Tropical Medicine

No

Urological

No

Wounds, injuries and accidents

No

Violence and abuse

No

31. Language.

Select each language individually to add it to the list below, use the bin icon to remove any added in error.

English

There is an English language summary.

32. * Country.

Select the country in which the review is being carried out from the drop down list. For multi-national collaborations select all the countries involved.

China

33. Other registration details.

Give the name of any organisation where the systematic review title or protocol is registered (such as with The Campbell Collaboration, or The Joanna Briggs Institute) together with any unique identification number assigned. (N.B. Registration details for Cochrane protocols will be automatically entered). If extracted data will be stored and made available through a repository such as the Systematic Review Data Repository (SRDR), details and a link should be included here. If none, leave blank.

None

34. Reference and/or URL for published protocol.

Give the citation and link for the published protocol, if there is one

None

Give the link to the published protocol.

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Alternatively, upload your published protocol to CRD in pdf format. Please note that by doing so you are consenting to the file being made publicly accessible.

No I do not make this file publicly available until the review is complete

Please note that the information required in the PROSPERO registration form must be completed in full even if access to a protocol is given.

35. Dissemination plans.

Give brief details of plans for communicating essential messages from the review to the appropriate audiences.

Do you intend to publish the review on completion?

Yes

36. Keywords.

Give words or phrases that best describe the review. Separate keywords with a semicolon or new line. Keywords will help users find the review in the Register (the words do not appear in the public record but are included in searches). Be as specific and precise as possible. Avoid acronyms and abbreviations unless these are in wide use.

Coffee, tea, breast cancer. preventing, network meta-analysis

37. Details of any existing review of the same topic by the same authors.

Give details of earlier versions of the systematic review if an update of an existing review is being registered, including full bibliographic reference if possible.

38. * Current review status.

Review status should be updated when the review is completed and when it is published. For newregistrations the review must be Ongoing.

Please provide anticipated publication date

Review_Ongoing

39. Any additional information.

Provide any other information the review team feel is relevant to the registration of the review.

None

40. Details of final report/publication(s).

This field should be left empty until details of the completed review are available.

Give the link to the published review.