**Supplementary Figures**

Figure S1 Sensitivity analysis of the association between periodontal disease and prostate cancer

Figure S2 Funnel plot of the association between periodontal disease and prostate cancer

Figure S3 Sensitivity analysis of the association between periodontal disease and BPH

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Figure S1 Sensitivity analysis of the association between periodontal disease and prostate cancer

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Figure S2 Funnel plot of the association between periodontal disease and prostate cancer

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Figure S3 Sensitivity analysis of the association between periodontal disease and BPH

**Supplementary Tables**

Table S1 Quality assessment of cohort study

Table S2 Quality assessment of case-control study

Table S3 Quality assessment of cross-sectional studies

Table S4 PRISMA 2020 Checklist

**Table S1 Quality assessment of cohort study**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Study** | **Selection** | | | |  | **Comparability** | |  | **Outcome** | | |  | **Total** |
| **Representativeness of the exposed cohort** | **Selection of the non-exposed cohort** | **Ascertainment of exposure** | **Demonstration that outcome of interest was not present at start of study** | **Comparability of cohorts on the basis of the design or analysis (important factor)** | **Comparability of cohorts on the basis of the design or analysis (additional factor)** | **Assessment of outcome** | **Was follow-up long enough for outcomes to occur** | **Adequacy of follow up of cohorts** |  |
| Chen SH 2023 | ✮ | ✮ | ✮ | / |  | ✮ | / |  | ✮ | ✮ | ✮ |  | 7/9 |
| Beger-Luedde J 2023 | ✮ | ✮ | ✮ | ✮ |  | ✮ | ✮ |  | ✮ | ✮ | ✮ |  | 9/9 |
| Meurman JH 2022 | ✮ | ✮ | ✮ | / |  | ✮ | / |  | ✮ | ✮ | ✮ |  | 7/9 |
| Fu E 2020 | ✮ | ✮ | ✮ | ✮ |  | ✮ | / |  | ✮ | ✮ | ✮ |  | 8/9 |
| Chung PC 2020 | ✮ | ✮ | ✮ | / |  | ✮ | / |  | ✮ | ✮ | ✮ |  | 7/9 |
| Kim DH 2020 | ✮ | ✮ | ✮ | ✮ |  | ✮ | ✮ |  | ✮ | ✮ | ✮ |  | 9/9 |
| Güven DC 2019 | ✮ | ✮ | ✮ | ✮ |  | ✮ | / |  | ✮ | ✮ | ✮ |  | 8/9 |
| Michaud DS 2018 | ✮ | ✮ | ✮ | ✮ |  | ✮ | ✮ |  | ✮ | ✮ | ✮ |  | 9/9 |
| Heikkila P 2018 | ✮ | ✮ | ✮ | ✮ |  | ✮ | ✮ |  | ✮ | ✮ | ✮ |  | 9/9 |
| Michaud DS 2016 | ✮ | ✮ | ✮ | / |  | ✮ | / |  | ✮ | ✮ | ✮ |  | 7/9 |
| Arora M 2010 | ✮ | ✮ | / | / |  | ✮ | / |  | ✮ | ✮ | ✮ |  | 6/9 |
| Hujoel PP 2003 | / | ✮ | ✮ | ✮ |  | / | / |  | ✮ | ✮ | ✮ |  | 6/9 |
| Hwang IM 2014 | ✮ | ✮ | ✮ | ✮ |  | ✮ | ✮ |  | ✮ | ✮ | ✮ |  | 9/9 |

**Table S2 Quality assessment of case-control study**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Study** | **Selection** | | | |  | **Comparability** | |  | **Exposure** | | |  | **Total** |
| **Is the case definition adequate** | **Representativeness of the cases** | **Selection of Controls** | **Definition of Controls** | **Comparability of cases and controls on the basis of the design or analysis (important factor)** | **Comparability of cases and controls on the basis of the design or analysis (additional factor)** | **Ascertainment of exposure** | **Same method of ascertainment for cases and controls** | **Non-Response rate** |  |
| Boland MR 2013 | ✮ | ✮ | ✮ | ✮ |  | / | / |  | ✮ | ✮ | / |  | 6/9 |

**Table S3 Quality assessment of cross-sectional studies**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Study** | | | Byun SH | Wu L |
| **Joanna Briggs Institute (JBI)** | Were the criteria for inclusion in the sample clearly defined? | Yes | √ | √ |
| No |  |  |
| Unclear |  |  |
| Not applicable |  |  |
| Were the study subjects and the setting described in detail? | Yes | √ | √ |
| No |  |  |
| Unclear |  |  |
| Not applicable |  |  |
| Was the exposure measured in a valid and reliable way? | Yes |  | √ |
| No | √ |  |
| Unclear |  |  |
| Not applicable |  |  |
| Were objective, standard criteria used for measurement of the condition? | Yes | √ | √ |
| No |  |  |
| Unclear |  |  |
| Not applicable |  |  |
| Were confounding factors identified? | Yes | √ | √ |
| No |  |  |
| Unclear |  |  |
| Not applicable |  |  |
| Were strategies to deal with confounding factors stated? | Yes | √ | √ |
| No |  |  |
| Unclear |  |  |
| Not applicable |  |  |
| Were the outcomes measured in a valid and reliable way? | Yes |  |  |
| No | √ | √ |
| Unclear |  |  |
| Not applicable |  |  |
| Was appropriate statistical analysis used? | Yes | √ | √ |
| No |  |  |
| Unclear |  |  |
| Not applicable |  |  |
| **Total** | | | 6/8 | 7/8 |

Table S4 PRISMA 2020 Checklist

| **Section and Topic** | **Item No** | **Checklist item** | **Reported on Page Number/Line Number** | **Reported on Section/Paragraph** |
| --- | --- | --- | --- | --- |
| **TITLE** | | |  |  |
| Title | 1 | Identify the report as a systematic review. | Line 3-4 | Title |
| **ABSTRACT** | | |  |  |
| Abstract | 2 | See the PRISMA 2020 for Abstracts checklist. | Line 23-48 | Abstract |
| **INTRODUCTION** | | |  |  |
| Rationale | 3 | Describe the rationale for the review in the context of existing knowledge. | Line 54-100 | **Introduction** |
| Objectives | 4 | Provide an explicit statement of the objective(s) or question(s) the review addresses. | Line 101-104 | **Introduction** |
| **METHODS** | | |  |  |
| Eligibility criteria | 5 | Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses. | Line 110-119 | **Methods** |
| 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. | Line 120-124 | **Methods** |
| Search strategy | 7 | Present the full search strategies for all databases, registers and websites, including any filters and limits used. | Line 124-128 | **Methods** |
| 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. | Line 129-133 | **Methods** |
| 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. | Line 134-138 | **Methods** |
| 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. | Line 139-144 | **Methods** |
| 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. | Line 145-151 | **Methods** |
| 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. | Line 152-168 | **Methods** |
| 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. | Line 169-172 | **Methods** |
| 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)). | Line 169-170 | **Methods** |
| 13b | Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions. | Line 173-175 | **Methods** |
| 13c | Describe any methods used to tabulate or visually display results of individual studies and syntheses. | Line 175-175 | **Methods** |
| 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. | Line 172-177 | **Methods** |
| 13e | Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression). | Line 180-181 | **Methods** |
| 13f | Describe any sensitivity analyses conducted to assess robustness of the synthesized results. | Line 182-183 | **Methods** |
| Reporting bias assessment | 14 | Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases). | Line 183-185 | **Methods** |
| Certainty assessment | 15 | Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome. | Line 171-174 | **Methods** |
| **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. | Line 189-198 | **Results** |
| 16b | Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded. | Line 352-360 | **Discussion** |
| Study characteristics | 17 | Cite each included study and present its characteristics. | Line 200-222 | **Results** |
| Risk of bias in studies | 18 | Present assessments of risk of bias for each included study. | Line 223-230 | **Results** |
| 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. | Line 231-312 | **Results** |
| Results of syntheses | 20a | For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies. | Line 231-312 | **Results** |
| 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. | Line 231-312 | **Results** |
| 20c | Present results of all investigations of possible causes of heterogeneity among study results. | Line 231-312 | **Results** |
| 20d | Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results. | Line 231-312 | **Results** |
| Reporting biases | 21 | Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed. | Line 255-257, 274-276 | **Results** |
| Certainty of evidence | 22 | Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed. | Line 231-312 | **Results** |
| **DISCUSSION** | | |  |  |
| Discussion | 23a | Provide a general interpretation of the results in the context of other evidence. | Line 315-318 | **Discussion** |
| 23b | Discuss any limitations of the evidence included in the review. | Line 437-443 | **Limitations** |
| 23c | Discuss any limitations of the review processes used. | Line 443-446 | **Limitations** |
| 23d | Discuss implications of the results for practice, policy, and future research. | Line 447-453 | **Conclusions** |
| **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. | Line 108 | **Methods** |
| 24b | Indicate where the review protocol can be accessed, or state that a protocol was not prepared. | N/A |  |
| 24c | Describe and explain any amendments to information provided at registration or in the protocol. | N/A |  |
| Support | 25 | Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review. | Line 462-463 | **Funding Statement** |
| Competing interests | 26 | Declare any competing interests of review authors. | Line 467-468 | **Conflict of Interest** |
| 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. | Line 464-466 | **Availability of Data and Materials** |

\*As the checklist was provided upon initial submission, the page number/line number reported may be changed due to copyediting and may not be referable in the published version. In this case, the section/paragraph may be used as an alternative reference.