

STROBE Statement—checklist of items that should be included in reports of observational studies

| Section/item | Item No | Recommendation | Reported on Page Number/Line Number | Reported on Section/Paragraph |
|------------------------------|---------|--|-------------------------------------|----------------------------------|
| Title and abstract | 1 | (a) Indicate the study's design with a commonly used term in the title or the abstract | 2/1 | Objective/1 |
| | | (b) Provide in the abstract an informative and balanced summary of what was done and what was found | 2/18 | Results/1 |
| Introduction | | | | |
| Background/ rationale | 2 | Explain the scientific background and rationale for the investigation being reported | 3/4, 3/23 | Introduction/1 Introduction/2 |
| Objectives | 3 | State specific objectives, including any prespecified hypotheses | 3/29 | Introduction/3 |
| Methods | | | | |
| Study design | 4 | Present key elements of study design early in the paper | 4/14 | Materials/1 |
| Setting | 5 | Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection | 4/14 | Materials/1 |
| Participants | 6 | (a) Cohort study —Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up Case-control study —Give the eligibility criteria, and the sources and methods of case ascertainment and control selection. Give the rationale for the choice of cases and controls Cross-sectional study —Give the eligibility criteria, and the sources and methods of selection of participants | 4/14 | Materials/1 |
| | | (b) Cohort study —For matched studies, give matching criteria and number of exposed and unexposed Case-control study —For matched studies, give matching criteria and the number of controls per case | 4/15 | Materials/1 |
| Variables | 7 | Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable | 4/19 | Materials/1 |
| Data sources/ measurement | 8* | For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group | 4/22 6/4 | Materials/1 Image analysis/2 |
| Bias | 9 | Describe any efforts to address potential sources of bias | 5/20 | Image analysis/1 |
| Study size | 10 | Explain how the study size was arrived at | 4/22 | Materials/1 |
| Quantitative variables | 11 | Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why | 6/4 | Image analysis/2 |

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| Statistical methods | 12 | (a) Describe all statistical methods, including those used to control for confounding | 7/15 | Statistical methods/1 |
| | | (b) Describe any methods used to examine subgroups and interactions | 7/19 | Statistical methods/1 |
| | | (c) Explain how missing data were addressed | N/A | This is a retrospective study |
| | | (d) Cohort study —If applicable, explain how loss to follow-up was addressed Case-control study —If applicable, explain how matching of cases and controls was addressed Cross-sectional study —If applicable, describe analytical methods taking account of sampling strategy | N/A | This is a retrospective study |
| | | (e) Describe any sensitivity analyses | N/A | This is a retrospective study |
| Results | | | | |
| Participants | 13* | (a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed | 8/9 | 3.1/1 |
| | | (b) Give reasons for non-participation at each stage | N/A | This is a retrospective study |
| | | (c) Consider use of a flow diagram | N/A | We believe that this study has well explained the relevant process, flow diagram is not necessary. |
| Descriptive data | 14* | (a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders | 8/9 | 3.1/1 |
| | | (b) Indicate number of participants with missing data for each variable of interest | N/A | This is a retrospective study |
| | | (c) Cohort study —Summarise follow-up time (eg, average and total amount) | N/A | This is a retrospective study |
| Outcome data | 15* | Cohort study —Report numbers of outcome events or summary measures over time | 8/9 | 3.1/1 |
| | | Case-control study —Report numbers in each exposure category, or summary measures of exposure | N/A | This is a retrospective study |
| | | Cross-sectional study —Report numbers of outcome events or summary measures | N/A | This is a retrospective study |
| Main results | 16 | (a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included | 8/9, 9/3, 9/19, 10/16 | 3.1/1, 3.1/2, 3.1/3, 3.2/1 |
| | | (b) Report category boundaries when continuous variables were categorized | 8/9, 9/3, 9/19, 10/16 | 3.1/1, 3.1/2, 3.1/3, 3.2/1 |
| | | (c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period | N/A | It is not relevant to this study. |
| Other analyses | 17 | Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses | 10/16 | 3.2/1 |
| Discussion | | | | |
| Key results | 18 | Summarise key results with reference to study objectives | 11/1 | Discussion/1 |

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| Limitations | 19 | Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias | 16/10 | Discussion/7 |
| Interpretation | 20 | Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence | 11/1 17/4 | Discussion/1 Conclusions/1 |
| Generalisability | 21 | Discuss the generalisability (external validity) of the study results | 17/4 | Conclusions/1 |
| Other information | | | | |
| Funding | 22 | Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based | 17/13 | Acknowledgments/1 |

*Give information separately for cases and controls in case-control studies and, if applicable, for exposed and unexposed groups in cohort and cross-sectional studies.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at <http://www.plosmedicine.org/>, Annals of Internal Medicine at <http://www.annals.org/>, and Epidemiology at <http://www.epidem.com/>). Information on the STROBE Initiative is available at www.strobe-statement.org.

Article information: <https://dx.doi.org/10.21037/qims-21-740>.

*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.