| Section                      | Item | Checklist description                                                                 | Reported on Page Number/Line Number | Reported on Section/Paragraph |
|------------------------------|------|----------------------------------------------------------------------------------------|------------------------------------|-----------------------------|
| **Title and abstract**       |      |                                                                                        |                                    |                             |
| **Title**                    | 1    | Identify the study as developing and/or validating a multivariable prediction model,    Page1/Line3-4  | Title/Paragraph1                   |
|                              |      | the target population, and the outcome to be predicted.                                 |                                    |                             |
| **Abstract**                 | 2    | Provide a summary of objectives, study design, setting, participants, sample size,      Page2/Line1-22  | Abstract/Paragraph1-4              |
|                              |      | predictors, outcome, statistical analysis, results, and conclusions.                    |                                    |                             |
| **Introduction**             |      |                                                                                        |                                    |                             |
| **Background and objectives**| 3a   | Explain the medical context (including whether diagnostic or prognostic) and rationale Page2/Line28-34  | Introduction/Paragraph1-2          |
|                              |      | for developing or validating the multivariable prediction model, including references   Page3/Line1-13  |                                    |                             |
|                              |      | to existing models.                                                                     |                                    |                             |
|                              | 3b   | Specify the objectives, including whether the study describes the development or       Page3/Line14-25  | Introduction/Paragraph3            |
|                              |      | validation of the model or both.                                                       |                                    |                             |
| **Methods**                  |      |                                                                                        |                                    |                             |
| **Source of data**           | 4a   | Describe the study design or source of data (e.g., randomized trial, cohort, or registry Page4/Line3-17  | Methods/Paragraph1                 |
|                              |      | data), separately for the development and validation data sets, if applicable.          |                                    |                             |
|                              | 4b   | Specify the key study dates, including start of accrual; end of accrual; and, if       Page4/Line3-17  | Methods/Paragraph1                 |
|                              |      | applicable, end of follow-up.                                                          |                                    |                             |
| **Participants**             | 5a   | Specify key elements of the study setting (e.g., primary care, secondary care, general Page4/Line3-17  | Methods/Paragraph1                 |
|                              |      | population) including number and location of centres.                                   |                                    |                             |
|                              | 5b   | Describe eligibility criteria for participants.                                        Page4/Line3-17  | Methods/Paragraph1                 |
|                              | 5c   | Give details of treatments received, if relevant.                                      Page4/Line3-17  | Methods/Paragraph1                 |
|                              |      | no treatments                                                                          no treatments  | no treatments                   |
| **Outcome**                  | 6a   | Clearly define the outcome that is predicted by the prediction model, including how and Page4/Line3-17  | Methods/Paragraph1                 |
|                              |      | and when assessed.                                                                     no blind assessment  | no blind assessment             |
|                              | 6b   | Report any actions to blind assessment of the outcome to be predicted.                  no blind assessment  | no blind assessment             |
| **Predictors**               | 7a   | Clearly define all predictors used in developing or validating the multivariable       Page4/Line3-17  | Methods/Paragraph4                 |
|                              |      | prediction model, including how and when they were measured.                            |                                    |                             |
|                              | 7b   | Report any actions to blind assessment of predictors for the outcome and other        no blind assessment  | no blind assessment             |
|                              |      | predictors.                                                                            |                                    |                             |
| **Sample size**              | 8    | Explain how the study size was arrived at.                                             Page4/Line3-17  | Methods/Paragraph1                 |
| Missing data | 9 | Describe how missing data were handled (e.g., complete-case analysis, single imputation, multiple imputation) with details of any imputation method. | no missing data | no missing data |
| --- | --- | --- | --- | --- |
| Statistical analysis methods | 10a | Describe how predictors were handled in the analyses. | Page5/Line1-17 | Methods/Paragraph4 |
| 10b | Specify type of model, all model-building procedures (including any predictor selection), and method for internal validation. | Page5/Line1-17 | Methods/Paragraph4 |
| 10d | Specify all measures used to assess model performance and, if relevant, to compare multiple models. | Page5/Line1-17 | Methods/Paragraph4 |
| Risk groups | 11 | Provide details on how risk groups were created, if done. | Page5/Line1-17 | Methods/Paragraph4 |
| Results | | | | |
| Participants | 13a | Describe the flow of participants through the study, including the number of participants with and without the outcome and, if applicable, a summary of the follow-up time. A diagram may be helpful. | Page5/Line23-24 Table 1 | Results/Paragraph1 |
| 13b | Describe the characteristics of the participants (basic demographics, clinical features, available predictors), including the number of participants with missing data for predictors and outcome. | Page5/Line23-24 Table 1 | Results/Paragraph1 |
| Model development | 14a | Specify the number of participants and outcome events in each analysis. | Page5/Line23-24 | Results/Paragraph1 |
| 14b | If done, report the unadjusted association between each candidate predictor and outcome. | Page5/Line23-24 | Results/Paragraph1 |
| Model specification | 15a | Present the full prediction model to allow predictions for individuals (i.e., all regression coefficients, and model intercept or baseline survival at a given time point). | Page6/Line1-21 Page7/Line3-22 | Results/Paragraph2-3 Results/Paragraph5 |
| 15b | Explain how to use the prediction model. | Page6/Line23-33 | Results/Paragraph4 |
| Model performance | 16 | Report performance measures (with CIs) for the prediction model. | Page6/Line23-33 | Results/Paragraph4 |
| Discussion | | | | |
| Limitations | 18 | Discuss any limitations of the study (such as nonrepresentative sample, few events per predictor, missing data). | Page10/Line19-25 | Discussion/Paragraph4 |
| Interpretation | 19b | Give an overall interpretation of the results, considering objectives, limitations, and results from similar studies, and other relevant evidence. | Page8/Line17-34 Page9/Line1-9 | Discussion/Paragraph1-2 |
| Implications | 20 | Discuss the potential clinical use of the model and implications for future research. | Page10/Line27-34 | Discussion/Paragraph5 |
| Other information | | | | |
| Supplementary information | 21 | Provide information about the availability of supplementary resources, such as study protocol, Web calculator, and data sets. | No supplementary information | No supplementary information |
| Funding | 22 | Give the source of funding and the role of the funders for the present study. | No funding | No funding |
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.