TRIPOD Checklist: Prediction Model Development

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, the target population, and the outcome to be predicted.	PAGE 1, LINE 2-3	title
Abstract	2	Provide a summary of objectives, study design, setting, participants, sample size, predictors, outcome, statistical analysis, results, and conclusions.	PAGE 3, LINE 6-46	abstract
Introduction				
Background and objectives	3a	Explain the medical context (including whether diagnostic or prognostic) and rationale for developing or validating the multivariable prediction model, including references to existing models.	PAGE 5-6, LINE 57-80	background, para 1-3
	3b	Specify the objectives, including whether the study describes the development or validation of the model or both.	PAGE 6-7, LINE 81-85	background, para 4
Methods				
Source of data	4a	Describe the study design or source of data (e.g., randomized trial, cohort, or registry data), separately for the development and validation data sets, ifapplicable.	PAGE 7, LINE 92-102	method, para 2
	4b	Specify the key study dates, including start of accrual; end of accrual; and, if applicable, end of follow-up.	PAGE 7 LINE 92-93	method, para 2
Participants	5a	Specify key elements of the study setting (e.g., primary care, secondary care, general population) including number and location of centres.	PAGE 7 LINE 92-93	method, para 2
	5b	Describe eligibility criteria for participants.	PAGE 7 LINE 93-97	method, para 2
	5c	Give details of treatments received, if relevant.	Not relevant	Not relevant
Outcome	6a	Clearly define the outcome that is predicted by the prediction model, including how and when assessed.	PAGE 10 LINE 160-165	method, para 9
	6b	Report any actions to blind assessment of the outcome to be predicted.	PAGE 10 LINE 153-155	method, para 8
Predictors	7a	Clearly define all predictors used in developing or validating the multivariable prediction model, including how and when they were measured.	PAGE 8-10, LINE 103-145	method, para 3-7
	7b	Report any actions to blind assessment of predictors for the outcome and other predictors.	PAGE 8 LINE 120-121	method, para 5
Sample size	8	Explain how the study size was arrived at.	PAGE 7 LINE 92-102	method, para 2

Missing data	9	Describe how missing data were handled (e.g., complete-case analysis, single imputation, multiple imputation) with details of any imputation method.	NA. We did not analyze missing data in our study.	
Statistical analysis methods	10a	Describe how predictors were handled in the analyses.	PAGE 10, LINE 157-162	method, para 9
	10b	Specify type of model, all model-building procedures (including any predictor selection), and method for internal validation.	PAGE 10, LINE 147-155	method, para 8
	10d	Specify all measures used to assess model performance and, if relevant, to compare multiple models.	PAGE 10 LINE 160-165	method, para 9
Risk groups	11	Provide details on how risk groups were created, if done.	NA. This study does not	
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.	PAGE 11, LINE 174-175 182-183	results, para 1
	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.	PAGE 11, LINE 176-183	results, para 1
Model development	14a	Specify the number of participants and outcome events in each analysis.	PAGE 12, LINE 195-203	results, para 3
	14b	If done, report the unadjusted association between each candidate predictor and outcome.	NA. There is no	
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).	PAGE 12, LINE 205-213	results, para 4
	15b	Explain how to the use the prediction model.	PAGE 12, LINE 185-193	results, para 2
Model performance	16	Report performance measures (with CIs) for the prediction model.	PAGE 12, LINE 205-213	results, para 4
Discussion				
Limitations	18	Discuss any limitations of the study (such as nonrepresentative sample, few events per predictor, missing data).	PAGE 15, LINE 252-255	discussion, the last para
Interpretation	19b	Give an overall interpretation of the results, considering objectives, limitations, and results from similar studies, and other relevant evidence.	PAGE 12-15, LINE 216-251	discussion, para1-4
Implications	20	Discuss the potential clinical use of the model and implications for future research.	PAGE 13, LINE 258-260	conclusio, para 1
Other information				
Supplementary information	21	Provide information about the availability of supplementary resources, such as study protocol, Web calculator, and data sets.	In the supplementary material	
Funding	22	Give the source of funding and the role of the funders for the present study.	PAGE 16, LINE 279-280	funding

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*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.