

Supplementary Materials

Predictive models for patient-reported outcomes (PROs) in elective spine surgery: a systematic review

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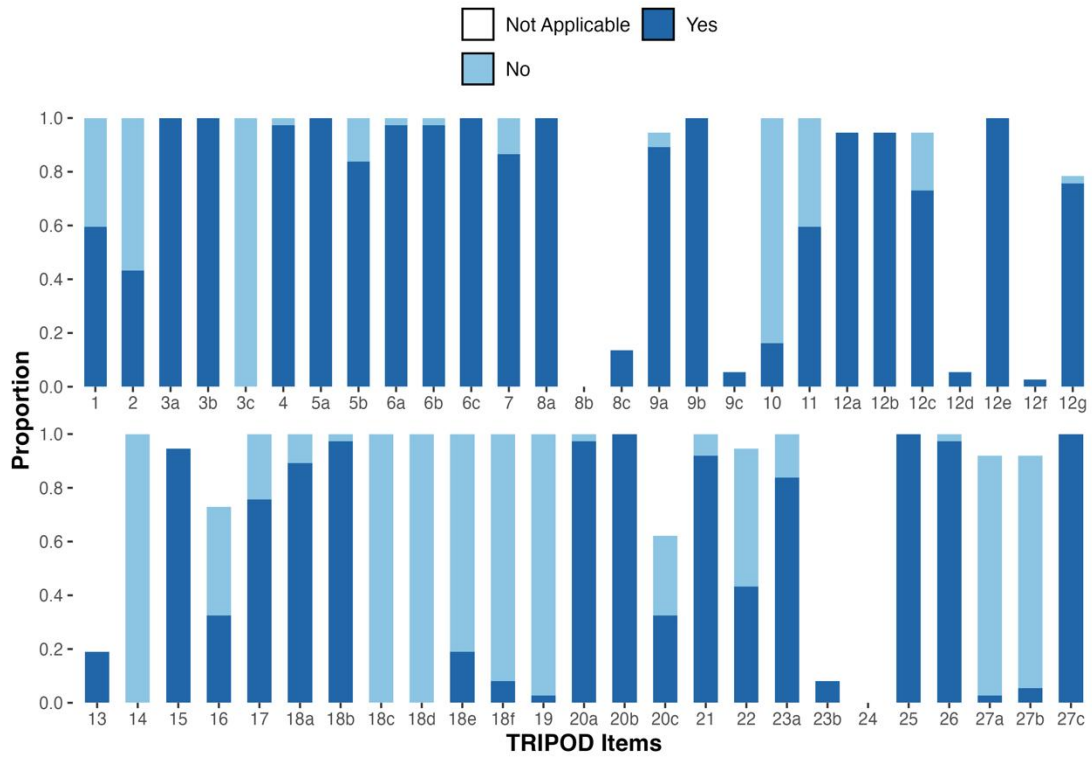
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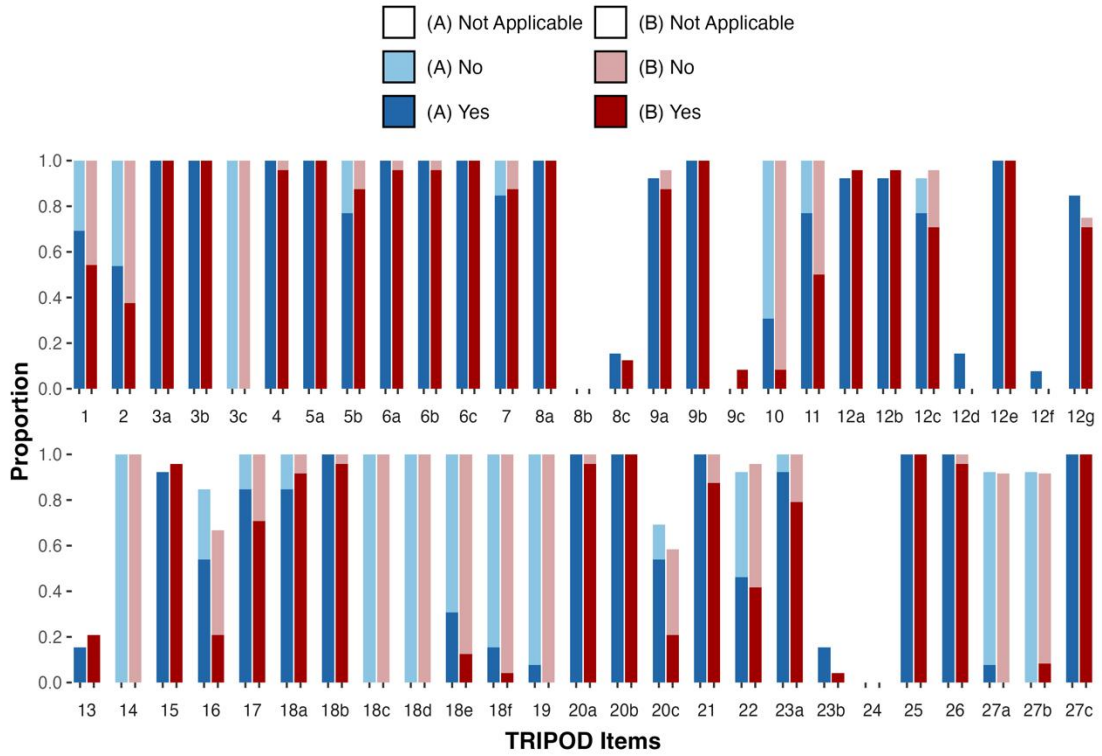
TRIPOD-AI Adherence



Supplementary Figure 1. TRIPOD-AI adherence for included studies ($N = 35$).

TRIPOD-AI: Transparent Reporting of a multivariable prediction model for Individual Prognosis Or Diagnosis^[12].

TRIPOD-AI Adherence by TRIPOD Acknowledgement



Supplementary Figure 2. TRIPOD-AI adherence by TRIPOD acknowledgement

A: Study mentions following TRIPOD guidelines (TRIPOD 2015 or TRIPOD-AI 2024). ($N=12$). B: Study does not mention following TRIPOD guidelines. ($N=23$).

TRIPOD-AI: Transparent Reporting of a multivariable prediction model for Individual Prognosis Or Diagnosis^[12].

Supplementary Table 1. TRIPOD-AI Adherence scores of included studies

First Author, Year	TRIPOD-AI adherence score (%)
Berg, 2024^[24]	83
Carreon, 2024^[29]	64
Pedersen, 2024^[30]	69
Halicka, 2023^[31]	87
Matsukura, 2023^[32]	62
Rushton, 2023^[33]	77
Geere, 2023^[34]	78
Zhang, 2023^[35]	70
Chen, 2023^[36]	79
Jaja, 2023^[15]	63
Sundaramoorthy, 2023^[16]	50
Staartjes, 2022^[14]	75
Dong, 2022^[37]	66
Pedersen, 2022^[38]	69
Coric, 2022^[39]	66

Purohit, 2022^[40]	59
Wirries, 2022^[17]	69
Khan, 2021^[41]	71
Budiono, 2021^[42]	71
Werner, 2021^[43]	73
Pilato, 2021^[44]	67
Karhade, 2021^[45]	73
Berjano, 2021^[25]	68
Zhang, 2021^[46]	67
Quddusi, 2020^[47]	74
Ford, 2020^[19]	80
Rundell, 2020^[20]	74
Staub, 2020^[18]	68
Siccoli, 2019^[48]	64
Merali, 2019^[49]	64
Staartjes, 2019^[50]	64
De la Garza Ramos, 2019^[51]	63

Rubery, 2019 ^[52]	71
Debnath, 2018 ^[21]	63
Nouri, 2015 ^[53]	63

For each study, a summary adherence score for the TRIPOD-AI guidelines was calculated as 100% times the number of items graded “Yes” divided by the sum of items graded “Yes” or “No” (i.e., items graded “Not applicable” were excluded).

TRIPOD-AI: Transparent Reporting of a multivariable prediction model for Individual Prognosis Or Diagnosis^[12].

Supplementary Appendix 1. Search queries for PubMed, Ovid/Embase, Web of Science, and Scopus databases:

A) PubMed: (1097 results)

("Spine"[MeSH Terms] OR spine surgery) AND ("Predictive Value of Tests"[MeSH Terms] OR "Models, Theoretical"[MeSH Terms] OR "Machine Learning"[MeSH Terms] OR "Artificial Intelligence"[MeSH Terms] OR "Regression Analysis"[MeSH Terms] OR predictive model* OR decision tree* OR neural network* OR support vector machine* OR random forest* OR regression) AND ("Patient Reported Outcome Measures"[MeSH Terms] OR PROMIS OR "Oswestry Disability Index" OR ODI OR "Modified Japanese Orthopaedic Association" OR mJOA) AND ("2010/01/01"[PDAT] : "3000"[PDAT])

B) Ovid Embase: (1581 results)

((('spine'/exp OR spine) AND surgery) AND ('predictive model'/exp OR 'machine learning'/exp OR 'artificial intelligence'/exp OR 'regression analysis'/exp OR prediction OR 'decision trees'/exp OR 'neural networks'/exp OR 'support vector machines'/exp OR 'random forests'/exp OR regression) AND ('patient reported outcome measure'/exp OR promis OR 'oswestry disability index' OR odi OR 'modified japanese orthopaedic association' OR mjoa) AND [2010-2024]/py

C) Web of Science: (630 results)

TS=(spine OR "spine surgery") AND TS=("predictive model*" OR "machine learning" OR "artificial intelligence" OR "regression analysis" OR prediction OR "decision trees" OR "neural networks" OR "support vector machines" OR "random forests" OR regression) AND TS=("patient reported outcome measures" OR PROMIS OR "Oswestry Disability Index" OR ODI OR "Modified Japanese Orthopaedic Association" OR mJOA) AND PY=2010-2024

D) Scopus: (1163 results)

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( TITLE-ABS-KEY ( spine OR "spine surgery" ) AND TITLE-ABS-KEY  
("predictive model*" OR "machine learning" OR "artificial intelligence" OR  
"regression analysis" OR prediction OR "decision trees" OR "neural networks" OR  
"support vector machines" OR "random forests" OR regression ) AND  
TITLE-ABS-KEY ( "patient reported outcome measures" OR promis OR "Oswestry  
Disability Index" OR odi OR "Modified Japanese Orthopaedic Association" OR  
mjoa ) ) AND PUBYEAR > 2010
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