

INTRODUCTION

Myocardial infarction is one of the leading causes of mortality across the globe. Standard treatment of ST elevated Myocardial infarction (STEMI) includes percutaneous intervention (PCI) which is safe with minimal rates of complications. However, PCI in elderly patients (> 80 years) can be associated with interventional challenges. To date, no clear evidence is available, and most decisions are based on the pre-morbid and functional status of a patient. We present a unique artificial intelligence-supported (or driven or led-you choose) scientific literature review to identify potential risk factors associated with post-PCI complications and survival in elderly patients which may help guide clinicians in treatment decision-making.

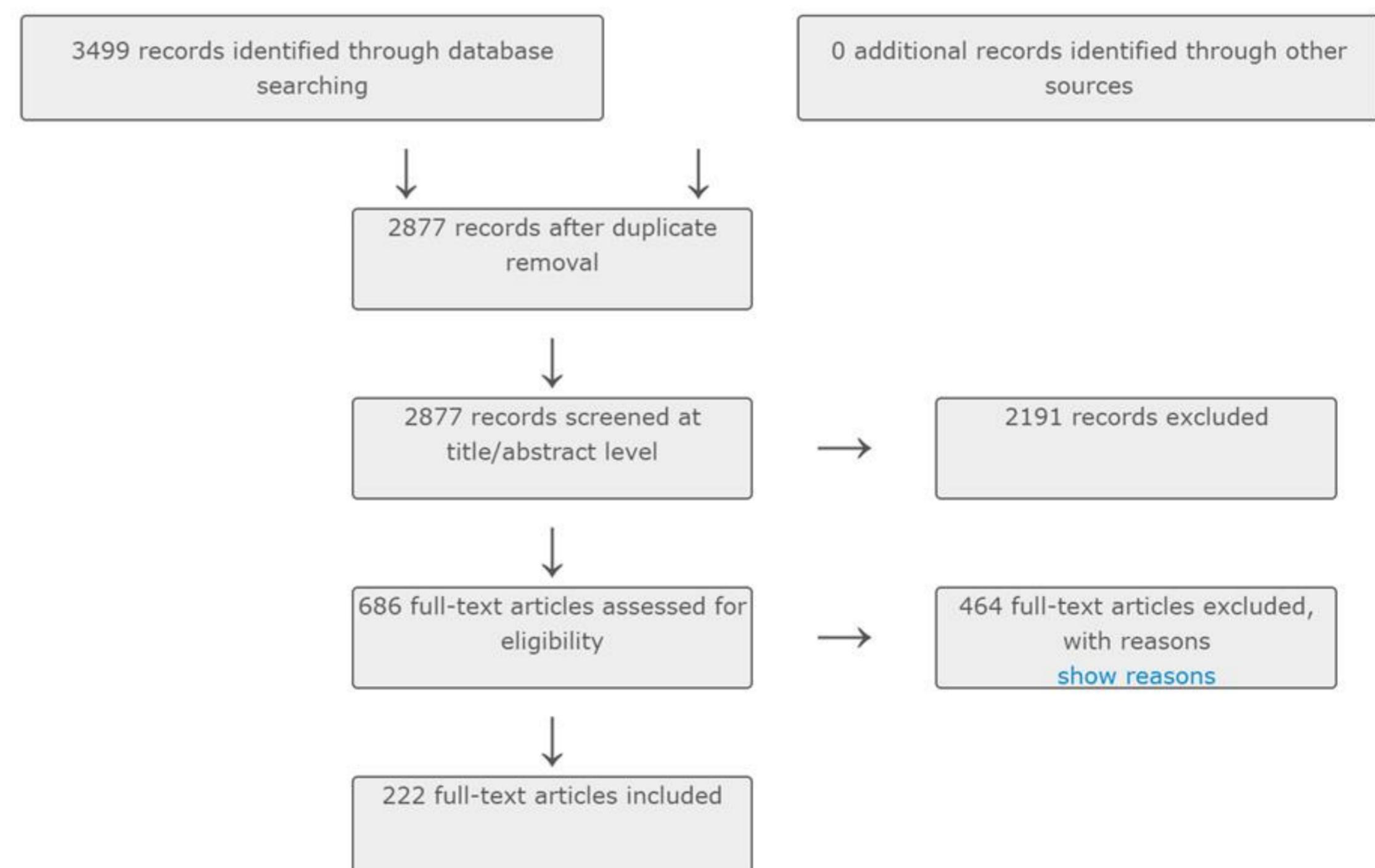
METHODOLOGY

This study uses artificial intelligence-driven search engines in addition to the conventional systematic literature review approach using keyword combinations. Semantic Scholar uses undefined algorithm¹ whereas Google Scholar emphasises full text. The uniqueness of this study is it combines AI-driven deep search and a classical approach to get optimised results. Semantic Scholar, Google Scholar, Cochrane database and pub-med were searched using "Risk prediction percutaneous coronary intervention (PCI) in elderly with STEMI" and a recombined phrase "Percutaneous coronary intervention (PCI) risk factors in elderly with STEMI". A total of 3499 publications were identified between January 2015 and July 2023. This was followed by the application of PICO (population, intervention, control, outcome) using the CADIMA open-access tool, which resulted in 136 scientific studies relevant to our objective.

RESULTS

Time period	• 01.02.2015 – 31.07.2023
Database included	<ul style="list-style-type: none">• Pubmed – 1047 publications• Semantic scholar – 179 publications• Cochrane library- 47• Google scholar-2226
Search string	<ul style="list-style-type: none">• PCI risk factors in population with STEMI
Inclusion criteria	<ul style="list-style-type: none">• STEMI patients only undergoing PCI intervention• Real world data in in-vivo• Outcome mentioning in-hospital mortality or Major adverse cardiovascular event (MACE)
Exclusion criteria	<ul style="list-style-type: none">• NSTEMI patients• Conference proceedings• Clinical trials• Publication not in English• Non-peer-reviewed publication• Studies not based on primary data• In-vitro studies• Studies exclusively on Chronic kidney disease, diabetes, heart failure patients

Cadima generated PICO flowchart



Key findings can be categorised into prognostic scores and identified risk factors. Conventional prognostic scores applied to date include the SYNTAX, STEMI- shock index, MELD- XI, TIMI risk score and CHA2DS2-VASc score to predict the occurrence of MACE (major cardiac adverse event). While these scores are not specific for the elderly population, they performed well. The SYNTAX score positively correlated with a post-procedure myocardial injury whereas the MELD-XI and the TIMI score were better associated with in-hospital mortality post-PCI. Identified risk factors included the presence of inflammatory diseases, chronic kidney disease and hyperlipidaemia.

CONCLUSION

Limited studies are available specifically for the elderly population when it comes to risk factors and prognosis-determining scores. However, conventional scores such as the SYNTAX, MELD-XI and TIMI risk scores can be used in the clinical setting to guide decision-making.