

METHODS

Criteria for including studies for this review

- (1) The article is published as an original research article in a peer-reviewed journal.
- (2) Studies in which PRS were used to predict the occurrence of gastric cancer were included.
- (3) Outcome measures and area under the receiver operating characteristic curve (ROC) are reported.
- (4) Those studies using only a single SNP were excluded.

Search strategies

To retrieve published studies for this review, we queried PubMed, Web of Science and Embase up to September 1, 2022, with no language limits. We cited high-quality articles in Reference Citation Analysis (<https://www.referencecitationanalysis.com>). The complete search strategy in each database is shown below:

PubMed

(gastric*[title/abstract] OR stomach*[title/abstract]) AND
(carcinoma*[title/abstract] OR cancer* [title/abstract] OR neoplas*[title/abstract])

OR adenoma*[title/abstract] OR malignan* [title/abstract] OR tumor*[title/abstract] OR tumour*[title/abstract] OR adenocarcinoma*[title/abstract] OR Oncol* [title/abstract]) AND ("genetic variant" [title/abstract] OR "genetic variants" [title/abstract] OR "genetic variation" [title/abstract] OR "genetic data" [title/abstract] OR polymorphism [title/abstract] OR SNP [title/abstract] OR SNPs [title/abstract] OR polygenic [title/abstract]) AND ("risk stratification" [title/abstract] OR "risk model" [title/abstract] OR "risk profile" [title/abstract] OR "risk profiling" [title/abstract] OR "risk prediction" [title/abstract] OR "risk determination" [title/abstract] OR "risk discrimination" [title/abstract] OR "risk score" [title/abstract] OR "predictive model" [title/abstract] OR "prediction model" [title/abstract] OR "prediction models" [title/abstract] OR "stratified screening" [title/abstract])

Web of Science

(TS=((gastric* OR stomach*) AND (carcinoma* OR cancer* OR neoplas* OR adenoma* OR malignan* OR tumor* OR tumour* OR adenocarcinoma*)) AND ("genetic variant" OR "genetic variants" OR "genetic variation" OR "genetic data" OR polymorphism OR SNP OR SNPs OR polygenic) AND ("risk stratification" OR "risk model" OR "risk profile" OR "risk profiling" OR "risk prediction" OR "risk determination" OR "risk discrimination" OR "risk score" OR "predictive model" OR "prediction model" OR "prediction models" OR "stratified screening"))) AND DOCUMENT TYPES: (Article)

Embase

(gastric* OR stomach*) AND (carcinoma* OR cancer* OR neoplas* OR adenoma* OR malignan* OR tumor* OR tumour* OR adenocarcinoma*) AND ('genetic variant' OR 'genetic variants' OR 'genetic variation' OR 'genetic data' OR polymorphism OR SNP OR SNPs OR polygenic) AND ('risk stratification' OR 'risk model' OR 'risk profile' OR 'risk profiling' OR 'risk prediction' OR 'risk determination' OR 'risk discrimination' OR 'risk score' OR 'predictive model' OR 'prediction model' OR 'prediction models' OR 'stratified screening') AND ([article]/lim OR [article in press]/lim)

Selection of studies

Titles and abstracts were screened according to inclusion criteria after removing duplicate studies. Then, the full text was scrutinized, and the studies that met the criteria were included in the review. The review was written following the recommendations of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement.

Data extraction and management

The following items were extracted from the full text and Supplementary: first author, year of publication, ethnicity of study panel, country, sample size,

number of SNPs used in PRS construction, PRS calculation method, clinical risk factors, the AUC/OR for the PRS models.

Statistical analyses

Pearson correlation analysis was used to test factors affecting the performance of PRS models. Mann-Whitney test was used to explore whether the predictive performance of PRS model is improved after including epidemiological factors.

These tests were performed using SPSS 18.0 software.