Fig S1.

PRISMA 2009 Flow Diagram
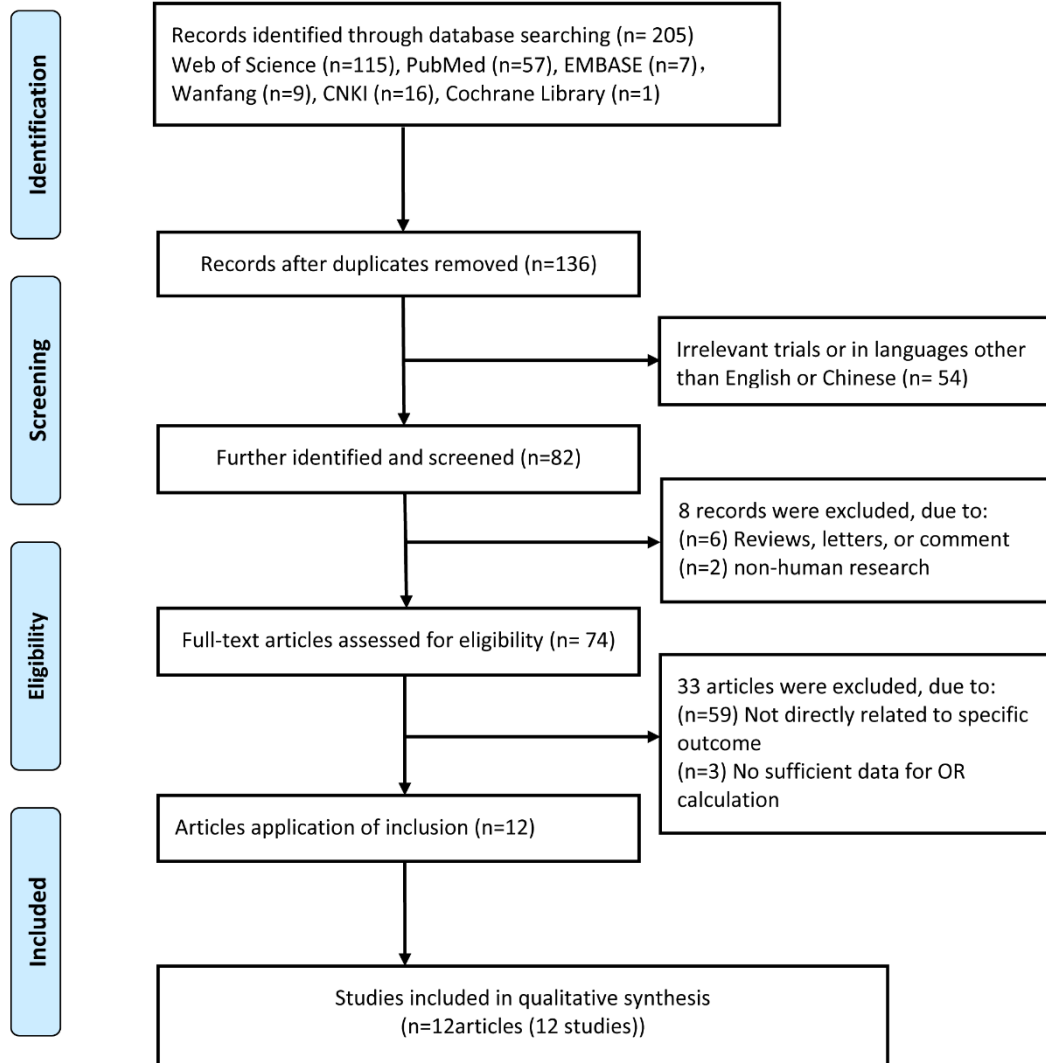
| Identification |
| :---: |
| Records identified through database searching (n= 205)
Web of Science (n=115), PubMed (n=57), EMBASE (n=7),
Wanfang (n=9), CNKI (n=16), Cochrane Library (n=1) |

Screening
Records after duplicates removed (n=136)

Irrelevant trials or in languages other than English or Chinese (n= 54)

Further identified and screened (n=82)

8 records were excluded, due to:
(n=6) Reviews, letters, or comment
(n=2) non-human research

Eligibility
Full-text articles assessed for eligibility (n= 74)

33 articles were excluded, due to:
(n=59) Not directly related to specific outcome
(n=3) No sufficient data for OR calculation

Articles application of inclusion (n=12)

| Included |
| :---: |
| Studies included in qualitative synthesis
(n=12articles (12 studies)) |

Supplementary Figure 1 Flow chart of literature search and study selection.
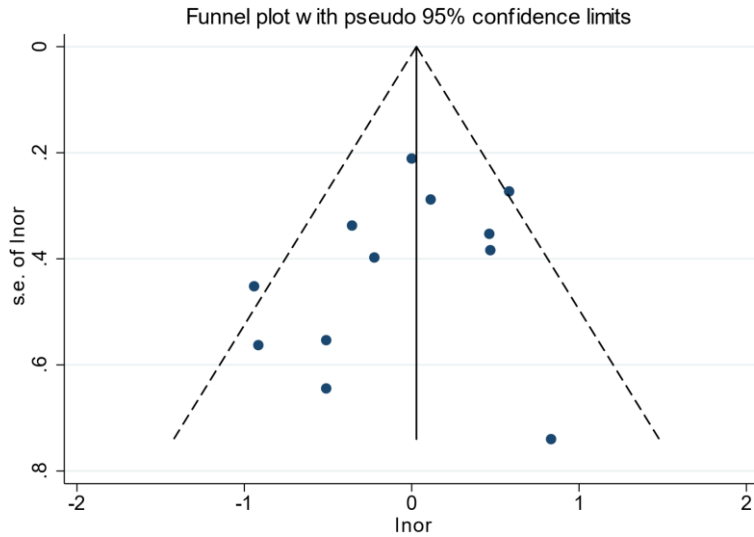
Supplementary Figure 2 Funnel plot of publication bias on the relationship between *Helicobacter pylori* cagA positive expression and gastric cardia cancer.
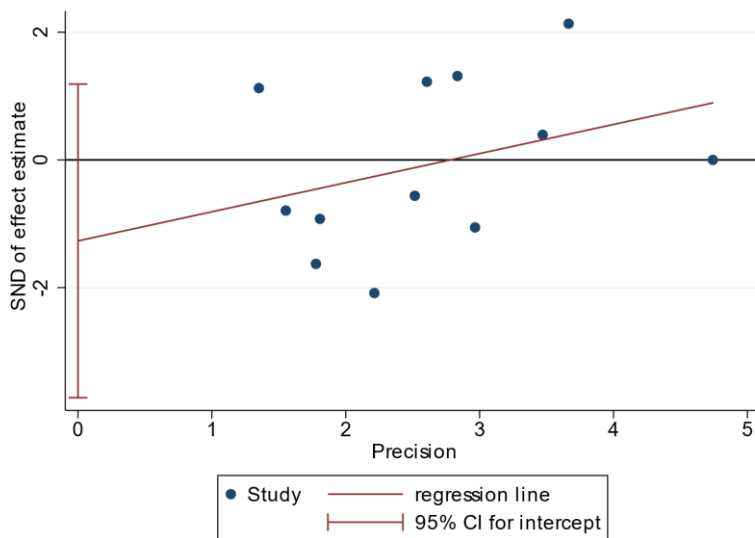
Supplementary Figure 3 Egger's funnel plot of publication bias on the relationship between *Helicobacter pylori* cagA positive expression and gastric cardia cancer.

Meta-analysis estimates, given named study is omitted
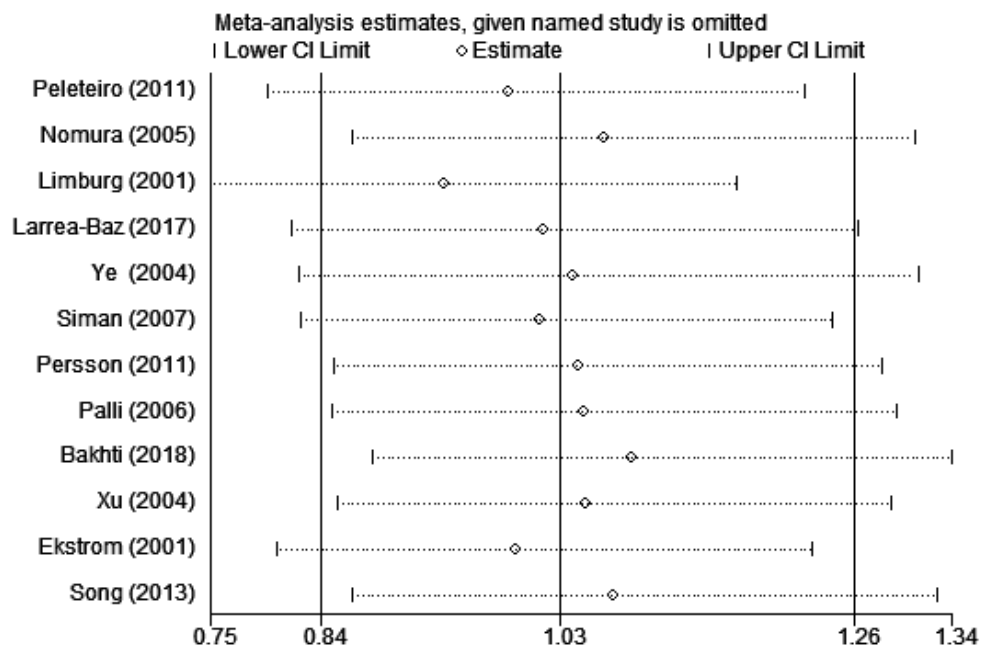
Supplementary Figure 4 The result of sensitivity analysis.

Supplementary Table 1 Characteristics of eligible studies.

Ref.	Year	Country	Study type	sample	OR (95%CI)	Adjustments
[44]	2011	Porto	case-control study	serum	1.59 (0.80-3.19)	Age and sex
[45]	2005	Hawaii	case-control study	serum	0.40 (0.13-1.18)	Sex, ethnicity, and age
[38]	2001	China	case-control study	serum	1.79 (1.05- 3.06)	Age and sex
[46]	2017	Spain	case-control study	serum	1.12 (0.64-1.98)	Age, sex, education, family history of gastric cancer and smoking status
[27]	2004	Sweden	case-control study	serum	1.00 (0.70- 1.60)	Age, sex, years of education, smoking status, alcohol consumption, and level of consumption of fruits and vegetables
[47]	2007	Malmö	nested case-control study	serum	2.30 (0.66-12.00)	Occupation and tobacco consumption
[48]	2011	Swedish	nested case-control study	serum	0.60 (0.20–2.50)	
[49]	2006	EPIC cohort[1]	nested case-control study	plasma	0.80 (0.40-1.90)	Education (low/high), smoking history (never-/ex-/current-smoker), weight (in continuous), total vegetables, fruit, red and preserved meat (calibrated values, in continuous) and the variable(s) of interest
Bakhti [50]	2018	Iran	case-control study	strain	0.39 (0.16–0.94)	Age and sex
Xu [51]	2004	China	case-control study	serum	0.60 (0.20-1.75)	Age, gender, occupation, education, eating on time, eating fast, bacon, poultry, milk, fresh fruit, years of refrigerator use, smoking, stomach ulcers, and history of first-degree relative tumors
Ekstrom [52]	2001	Sweden	case-control study	serum	1.60 (0.80–3.60)	Age, sex, body mass index, age at access to refrigerator, meals/day, geographic risk area, total fruit intake, total vegetable intake, and cigarette smoking
Song [53]	2013	Sweden	case-control study	serum	0.70 (0.40–1.50)	Age, sex, area of residence, SES, use of tobacco, level of fruit and vegetable consumption, and number of siblings

[1]Nine European countries (Sweden, Denmark, Netherlands, United Kingdom, France, Germany, Spain, Italy and Greece.

Supplementary Table 2 Quality assessment of included studies based on the Newcastle–Ottawa Scale for assessing the quality of case-control studies

Ref.	Selection (score)				Comparability (score)	Exposure (score)			Total score[2]
	Adequate definition of patient case	Representativeness of patients cases	Selection of controls	Definition of control	Control for important factor or additional factor	Ascertainment of exposure (blinding)	Same method of ascertainment for participants	Non-response rate[1]	
[44]	1	1	1	1	1	1	1	0	7
[45]	1	1	1	1	1	1	1	0	7
[38]	1	1	1	1	1	1	1	0	7
[46]	1	1	1	1	1	1	1	0	7
[27]	1	1	1	1	1	1	1	0	7
[47]	1	1	0	1	2	1	1	0	7
[48]	1	1	0	1	1	1	1	0	6
[49]	1	1	1	1	2	1	1	0	8
[50]	1	1	0	1	0	1	1	0	5
[51]	1	1	0	1	1	1	1	0	6
[52]	1	1	1	1	1	1	1	0	7
[53]	1	1	1	1	1	1	1	0	7

[1]When there was no statistical significance in the response rate between case and control groups by using a chi-squared test ($P > 0.05$), one point was awarded.

[2]Total score was calculated by adding up the points awarded in each item.