Supplementary Table 1. Summary of Study-Level Characteristics and Key Outcomes

Ref.	NLR Cutoff(s) U	Outcome/ Endpoint	ACM HR (95%CI, p)	CVM HR (95%CI, p)	ACM OR (95%CI, p)	CVM OR (95%CI, p)	Adjusted Variables
Erdem *et al*[13]	< 3.48, ≥ 3.48	ACM	NA	NA	18.830 (1.022–346.903), *P* = 0.048	NA	NA
Abe *et al*[14]	1.19-2.78, 2.89-3 4.66-10.75, > 3.72	ACM	NA	NA	NA	NA	Age, gender, diabetes
Neuen *et al*[15]	< 3, > 3	ACM and CVM	1.400 (1.253–1.564), *P* =	1.300 (1.204–1.404), *P* = 0	NA	NA	Age, gender, diabetes, and h
Ouellet *et al*[16]	< 2.38,	ACM	1.690 (1.120–2.550), *P* =	NA	NA	NA	Age, gender, serum albur access type, diabetes, ca obstructive pulmonary HIV/AIDS, ischemic he myocardial infarction, con

							failure
Yaprak *et al*[17]	> 2.52	ACM	1.536 (0.387–6.098), *P* =	NA	NA	NA	NA
Sato *et al*[18]	< 3.5, ≥ 3.5, > 4.11	ACM	1.280 (1.022–1.603), *P* =	NA	NA	NA	Age, sex, vascular access ty protein, hemoglobin, intact hormone, low-density cholesterol, calcium, congestive heart failure, c disease, ejection fraction, receptor blocker/angiotens enzyme inhibitor use, neutrophil-lymphocyte ratio

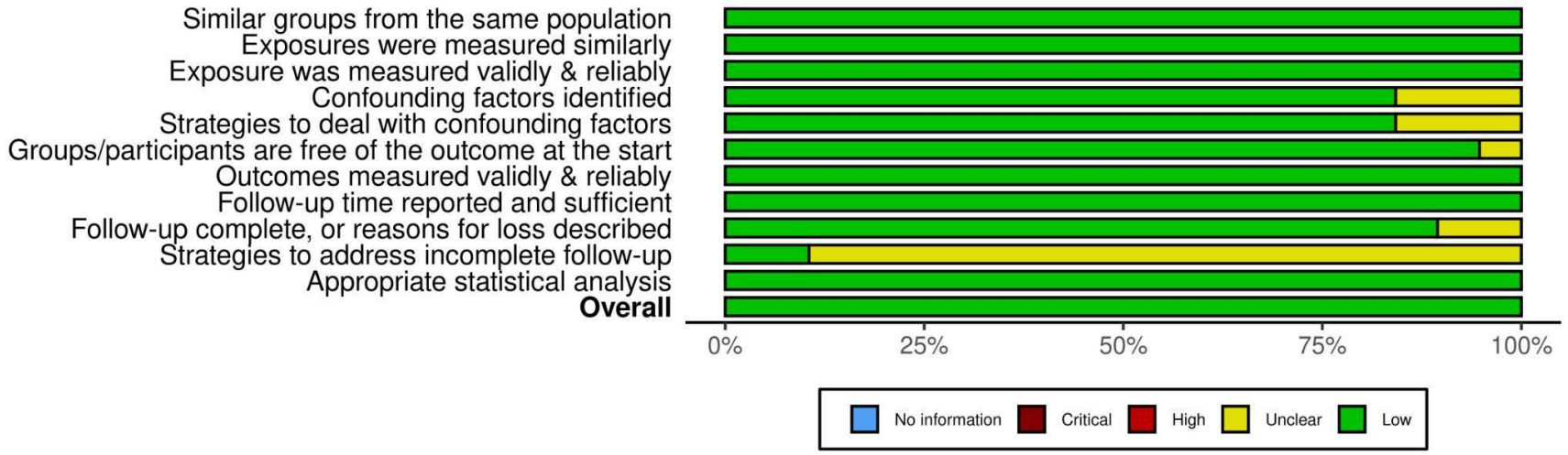
Li *et al*[19]	> 3.5	ACM and CVM	1.695 (1.288–2.231), *P* =	1.379 (1.162–1.637), *P* = 0	NA	NA	Age, gender, diabete hemodialysis duration, lipoprotein cholesterol, high reactive protein, pulse p ventricular mass index, pl media thickness ≥ 1.2 mm)
Xiang *et al*[20]	< 2.72, 2.72-3.75,	ACM and CVM	NA	NA	NA	NA	Age, sex, hemodial cardiovascular disease hist hypertension, body mass in hemoglobin, serum albumi triglycerides, low-density cholesterol, high-density cholesterol, calcium, phos parathyroid hormone, se white blood cells, lymphocytes, monocytes, hi C-reactive protein

Woziwodzka *et al*[21]	< 3.9, > 3.9	ACM	2.400 (1.170–4.922), *P* =	NA	NA	NA	Age, gender, diabetes, hemo
Balboul *et al*[22]	Baseline NLR varying NLR	ACM and CVM	1.035 (0.996–1.075), *P* =	1.013 (0.940–1.091), *P* = 0	NA	NA	Age, sex, dialysis vinta comorbidity index, vascula dialysis adequacy (Kt/V), white blood cells, triglyce transaminase, uric aci nutritional risk index, C-rea
Kular *et al*[23]	> 6.9	ACM	1.030 (1.010–1.050), *P* =	NA	NA	NA	NA
Oguz *et al*[24]	> 5.17	ACM	NA	NA	21.900 (2.920–164.241), *P* = 0.003	NA	NA

Zhang *et al*[25]	≤ 3.42 *vs* > 3.42	ACM and CVM	NA	NA	2.329 (1.264–4.292), *P* = 0.007	1.430 (0.689-2.9	Age, sex, neutrophils, platelets, hemoglobin, ser cholesterol, triglycerides phosphate, C-reactive protei
Lano *et al*[6]	< 3.49, > 3.49	ACM and CVM ar mortality	NA	NA	1.130 (1.012–1.262), *P* = 0.030	1.11 (1.006-1.22	NA
Wang *et al*[26]	N/A	Frailty and CVM	NA	NA	7.554 (3.257–17.522), *P* = 0.000	NA	NA
Parmelia *et al*[27]	> 3.65	ACM	2.696 (1.176–6.181), *P* =	NA	NA	NA	Age, diabetic kidney dise primary nephrotic condit arteriovenous fistula vascul hemodialysis respiratory hemodialysis temperature,

							hematocrit, serum creatinin acid
Wang *et al*[28]	> 4, < 4	Frailty and ACM	NA	NA	6.530 (3.332–12.798), *P* = 0.000	NA	Age, dialysis duration, edu hemoglobin, phosphorus lymphocyte ratio
Zhang *et al*[29]	< 2.58, > 2.58	ACM and CVM	1.634 (1.023–2.610), *P* =	1.606 (0.854–3.022), *P* = 0	NA	NA	Age, diabetes, coronary a hemoglobin, serum albu ferritin
He *et al*[30]	> 3.225	ACM	1.179 (1.053–1.320), *P* =	NA	NA	NA	Age, triglycerides, serum ir binding capacity, serum tran urea, serum creatinine

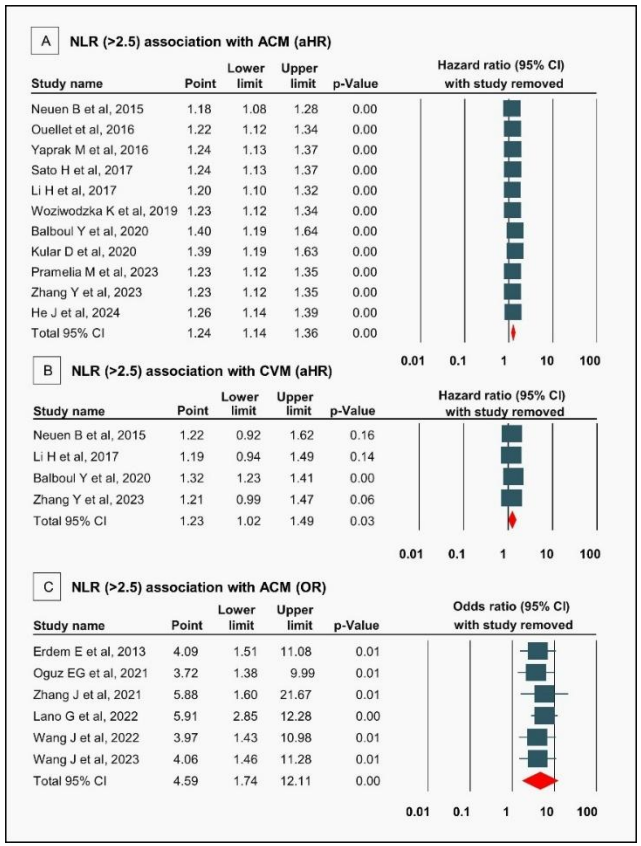
Supplementary Figure 1. Summary Plot of the Risk of Bias Generated using the Robvis Software based on the Joanna Briggs Institute Quality Appraisal of Cohort Studies



This summary plot summarizes the domain-level risk of bias across included studies. Most domains show low risk, though incomplete follow-up and strategies to address it had notable proportions of unclear risk, indicating some methodological limitations in follow-up reporting.

Supplementary Figure 2. Leave-one-out Sensitivity Analysis for NLR >2.5 Association with (A) ACM [HR], (B) CVM [HR], and (C) ACM [OR].

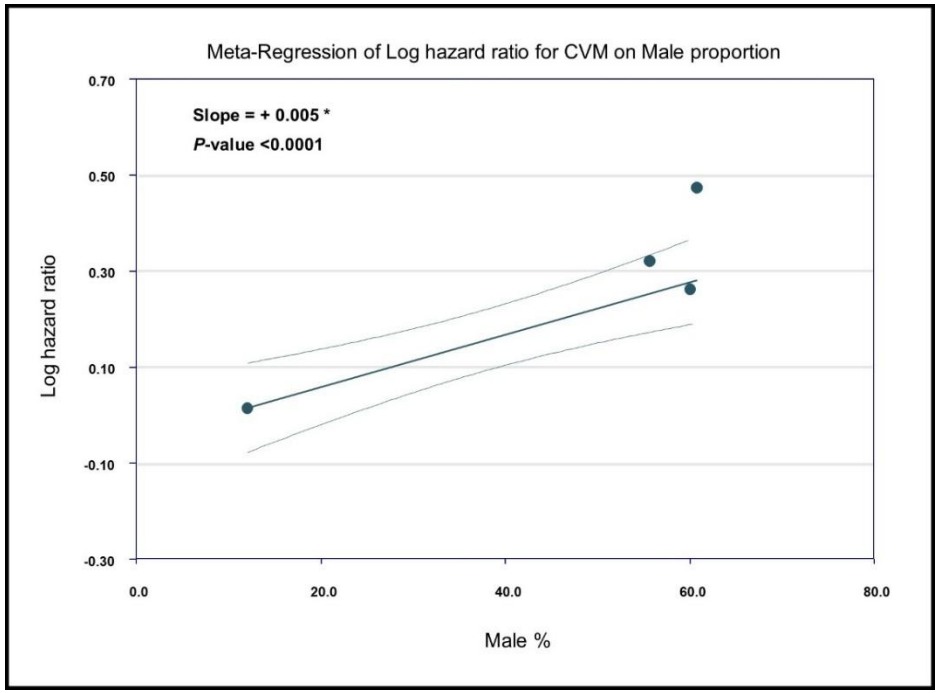
ACM: All-cause Mortality; CVM: Cardiovascular mortality; HR: Hazards ratio; OR: Odds ratio



This figure shows leave-one-out sensitivity analyses for associations between NLR >2.5 and mortality outcomes. Results remain robust across all panels, with no single study significantly altering the pooled effect estimates, indicating the findings are stable

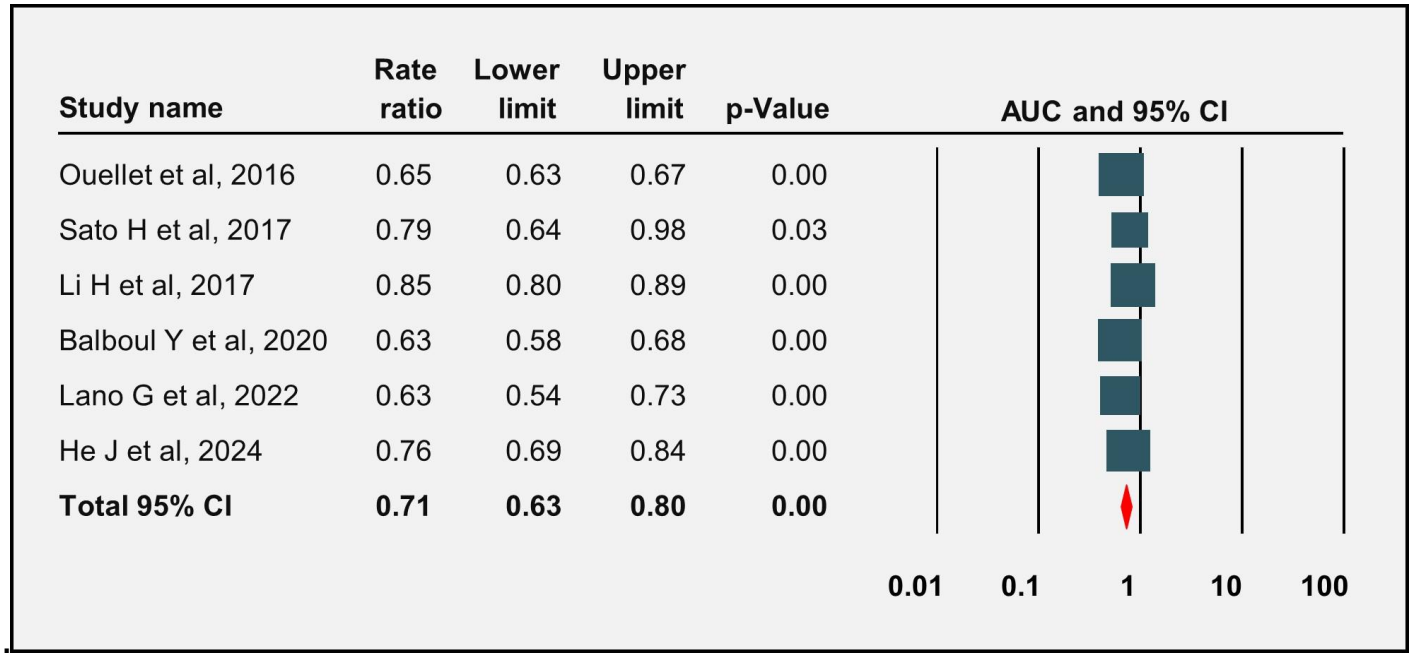
and not driven by any individual study.

Supplementary Figure 3. Scatter plot Illustrating Meta-regression Analysis of Cardiovascular Mortality among Males.



This meta-regression plot shows a significant positive association between the proportion of male participants and the log hazard ratio for cardiovascular mortality (CVM), with a slope of +0.005 and p-value < 0.0001. This suggests that higher male representation may be linked to greater CVM risk associated with elevated NLR.

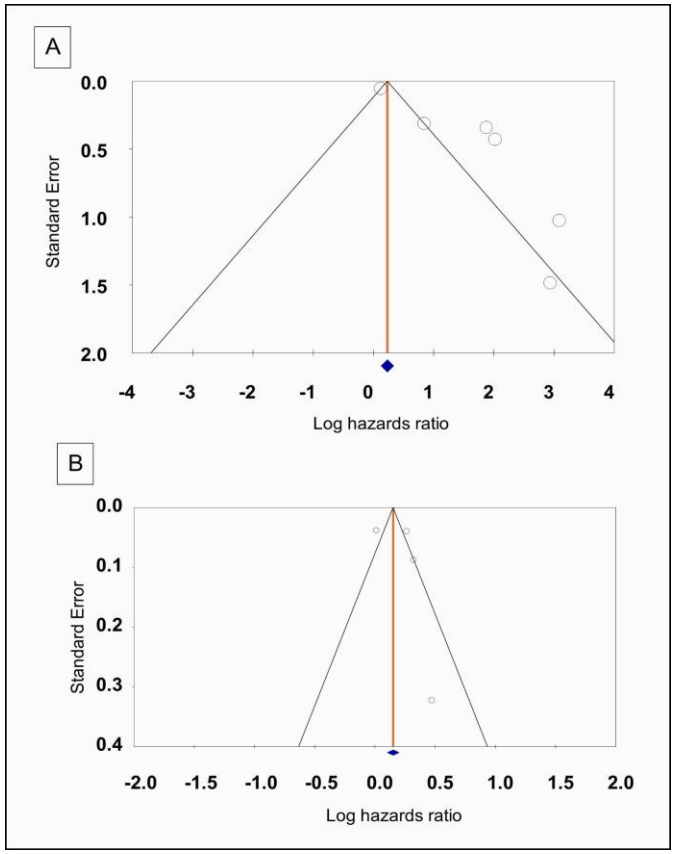
Supplementary Figure 4. Forest Plot Illustrating Pooled Area Under the Curve - Receiver Operating Curve analysis for All-Cause Mortality



This forest plot displays a pooled rate ratio of 0.71 (95% CI: 0.63–0.80, $p < 0.001$) across six studies, indicating a statistically significant reduction in risk. All individual studies consistently support this finding, with confidence intervals not crossing unity, suggesting robustness in the association analyzed.

Supplementary Figure 5. Funnel Plot Assessment of Publication Bias for NLR Association with (A) ACM and (B) CVM

ACM: All-cause Mortality; CVM: Cardiovascular mortality



These funnel plots assess publication bias. Panel A shows asymmetry, suggesting possible publication bias or small-study effects in the analysis of all-cause mortality. Panel B appears more symmetrical, indicating a lower likelihood of publication bias in the cardiovascular mortality analysis.