

Table SI. Subgroup analyses of the neutrophil-to-lymphocyte ratio in patients with breast cancer and non-breast cancer subjects.

Category	No. of studies	SMD (95% CI)	I ² , %
Total	35	0.59 (0.47-0.71)	91
Region			
East Asia	24	0.61(0.47-0.75)	94
Other regions	11	0.54 (0.28-0.80)	83
Control type			
Healthy	18	0.43 (0.28-0.58)	86
Benign breast disease	14	0.72 (0.50-0.95)	93
Healthy and benign breast disease	3	0.91 (0.75-1.07)	0
Publication year			
2019 and before	18	0.58 (0.42-0.75)	89
2020 and after	17	0.60 (0.41-0.80)	92
Early and middle patients with BC			
<70%	10	0.67 (0.39-0.95)	88
≥70%	11	0.60 (0.35-0.86)	90
Not reported	14	0.52 (0.36-0.68)	90
Hematology analyzer			
Beckman	7	0.32 (0.19-0.44)	35
Sysmex	13	0.60 (0.42-0.78)	88
Others	4	0.88 (0.17-1.59)	95
Not reported	11	0.69 (0.41-0.96)	94
Sex			
Female	31	0.60 (0.47-0.74)	91
Mixed	4	0.53 (0.30-0.76)	68

Cross-sectional study and NOS score of Case-control study			
Cross-sectional study	2	1.28 (0.91-1.65)	44
6	12	0.54 (0.36-0.71)	84
7	17	0.64 (0.44-0.85)	93
8	4	0.20(0.13-0.27)	0

NOS score was used to evaluate the literature quality of case-control and cohort studies. SMD, standard mean deviation; CI, confidence interval; BC, breast cancer; NOS, Newcastle-Ottawa Scale.

Table SII. Subgroup analyses of the neutrophil-to-lymphocyte ratio in patients with breast cancer and healthy subjects.

Category	No. of studies	SMD (95% CI)	I ² , %
Total	21	0.56 (0.39-0.73)	91
Region			
East Asia	14	0.58 (0.38-0.78)	92
Other regions	7	0.51 (0.11-0.91)	88
Publication year			
2019 and before	10	0.53 (0.33-0.73)	77
2020 and after	11	0.59 (0.34-0.84)	93
Early and middle patients with BC			
<70%	7	0.56 (0.20-0.93)	89
≥70%	7	0.60 (0.26-0.94)	92
Not reported	7	0.52 (0.23-0.82)	92
Hematology analyzer			
Beckman	5	0.26 (0.07-0.46)	45
Sysmex	11	0.63 (0.48-0.79)	68
Not reported	5	0.71 (0.27-1.15)	96
Sex			
Female	19	0.56 (0.38-0.74)	91
Mixed	2	0.52 (-0.08-1.11)	77
NOS score			
6	3	0.42 (0.01-0.82)	84
7	14	0.64 (0.40-0.88)	93
8	4	0.39 (0.00-0.78)	77

NOS score was used to evaluate the literature quality of case-control and cohort studies. SMD, standard mean deviation; CI, confidence interval; BC, breast cancer; NOS, Newcastle-Ottawa Scale.

Table SIII. Subgroup analyses of the neutrophil-to-lymphocyte ratio in patients with breast cancer and patients with benign breast disease.

Category	No. of studies	SMD (95% CI)	I ² , %
Total	17	0.70(0.51-0.90)	92
Region			
East Asia	12	0.70 (0.48-0.92)	93
Other regions	5	0.71 (0.22-1.20)	89
Publication year			
2019 and before	9	0.65 (0.40-0.89)	92
2020 and after	8	0.77 (0.45-1.10)	89
Early and middle patients with BC			
<70%	5	0.91 (0.61-1.21)	80
≥70%	5	0.71 (0.24-1.18)	90
Not reported	7	0.53 (0.31-0.74)	89
Hematology analyzer			
Beckman	2	0.38 (0.27-0.50)	0
Sysmex	5	0.61 (0.29-0.92)	90
Others	4	0.88 (0.17-1.59)	95
Not reported	6	0.80 (0.45-1.15)	86
Sex			
Female	15	0.74 (0.52-0.96)	93
Mixed	2	0.49 (0.24-0.73)	52
Cross-sectional study and NOS score of Case-control study			
Cross-sectional study	2	1.28 (0.91-1.65)	44
6	10	0.57 (0.39-0.75)	80

7	4	0.89 (0.44-1.35)	88
8	1	0.20 (0.13-0.27)	\

NOS score was used to evaluate the literature quality of case-control and cohort studies. SMD, standard mean deviation; CI, confidence interval; BC, breast cancer; NOS, Newcastle-Ottawa Scale.

Table SIV. Subgroup analyses of the platelet-to-lymphocyte ratio in patients with breast cancer and non-breast cancer subjects.

Category	No. of studies	SMD (95% CI)	I ² , %
Total	17	0.67 (0.41-0.92)	95
Region			
East Asia	10	0.42 (0.20-0.63)	92
Other regions	7	1.05 (0.34-1.75)	95
Control type			
Healthy	12	0.52 (0.29-0.74)	92
Benign breast disease	4	0.98 (-0.20-2.16)	98
Healthy and benign breast disease	1	1.21 (0.88-1.54)	\
Publication year			
2019 and before	9	0.60 (0.30-0.90)	89
2020 and after	8	0.74 (0.34-1.15)	97
Early and middle patients with BC			
<70%	5	0.99 (0.01-1.97)	97
≥70%	7	0.52 (0.20-0.85)	91
Not reported	5	0.55 (0.13-0.97)	95
Hematology analyzer			
Beckman	3	0.50 (0.23-0.76)	43
Sysmex	4	0.74 (0.28-1.19)	91
Others	3	0.48 (-0.08-1.03)	92
Not reported	7	0.77 (0.30-1.24)	97
Sex			
Female	15	0.64 (0.38-0.90)	95
Mixed	2	0.85 (0.22-1.48)	78

Cross-sectional study and NOS score of Case-control study			
Cross-sectional study	2	1.65 (-1.17-4.46)	99
6	4	0.36 (-0.01-0.74)	91
7	8	0.62 (0.32-0.93)	94
8	3	0.54 (0.19-0.89)	40

SMD, standardized mean differences; CI, confidence interval; BC, breast cancer; NOS, Newcastle-Ottawa Scale.

Table SV. Subgroup analyses of the platelet-to-lymphocyte ratio in patients with breast cancer and healthy subjects.

Category	No. of studies	SMD (95% CI)	I ² , %
Total	13	0.58 (0.35-0.81)	93
Region			
East Asia	8	0.44 (0.19-0.69)	94
Other regions	5	0.85 (0.44-1.27)	78
Publication year			
2019 and before	7	0.71 (0.37-1.05)	89
2020 and after	6	0.40 (0.17-0.63)	87
Early and middle patients with BC			
<70%	2	0.68 (0.13-1.32)	81
≥70%	7	0.53 (0.19-0.87)	91
Not reported	4	0.63 (0.10-1.17)	96
Hematology analyzer			
Beckman	3	0.50 (0.23-0.76)	43
Sysmex	4	0.74 (0.28-1.19)	91
Others	2	0.62 (-0.37-1.61)	95
Not reported	4	0.43 (0.12-0.73)	92
Sex			
Female	11	0.52 (0.32-0.73)	89
Mixed	2	0.85 (0.22-1.48)	78
NOS score			
6	3	0.42 (-0.12-0.96)	94
7	7	0.67 (0.32-1.02)	95
8	3	0.54 (0.19-0.89)	40

SMD, standardized mean differences; CI, confidence interval; BC, breast cancer; NOS,

Newcastle-Ottawa Scale.

Table SVI. Subgroup analyses of the platelet-to-lymphocyte ratio in patients with breast cancer and patients with benign breast disease.

Category	No. of studies	SMD (95% CI)	I ² , %
Total	5	0.95 (0.02-1.88)	97
Region			
East Asia	2	0.31 (0.10-0.51)	14
Other regions	3	1.38 (-0.30-3.05)	98
Publication year			
2019 and before	2	0.22 (0.00-0.43)	0
2020 and after	3	1.44 (-0.09-2.98)	98
Early and middle patients with BC			
<70%	2	1.65 (-1.17-4.46)	99
≥70%	2	0.61 (0.22-1.01)	63
Not reported	1	0.22 (-0.22-0.46)	\
Hematology analyzer			
Others	1	0.22 (-0.22-0.46)	\
Not reported	4	1.14 (-0.08-2.35)	98
Cross-sectional study and NOS score of Case-control study			
Cross-sectional study	2	1.65 (-1.17-4.46)	99
6	1	0.22 (-0.02-0.46)	\
7	2	0.61 (0.22-1.01)	63

SMD, standardized mean differences; CI, confidence interval; BC, breast cancer; NOS, Newcastle-Ottawa Scale.

Table SVII. Subgroup analyses of the lymphocyte-to-monocyte ratio in patients with breast cancer and non-breast cancer subjects.

Category	No. of studies	SMD (95% CI)	I ² , %
Total	4	-0.40 (-0.71--0.09)	86
Region			
East Asia	3	-0.39 (-0.74--0.04)	90
Other regions	1	-0.49 (-1.06-0.08)	\
Control type			
Healthy	3	-0.44 (-0.87--0.02)	91
Benign breast disease	1	-0.29 (-0.59-0.00)	\
Hematology analyzer			
Sysmex	2	-0.68 (-0.88--0.48)	0
Not reported	2	-0.18 (-0.26--0.11)	0
Sex			
Female	3	-0.39 (-0.74--0.04)	90
Male	1	-0.49 (-1.06-0.08)	\
NOS score			
7	3	-0.39 (-0.74--0.04)	90
8	1	-0.49 (-1.06-0.08)	\

SMD, standardized mean differences; CI, confidence interval; NOS, Newcastle-Ottawa Scale.

Table SVIII. Subgroup analyses of the lymphocyte-to-monocyte ratio in patients with breast cancer and healthy subjects.

Category	No. of studies	SMD (95% CI)	I ² , %
Total	3	-0.44 (-0.87--0.02)	91
Region			
East Asia	2	-0.43 (-0.95-0.09)	95
Other regions	1	-0.49 (-1.06-0.08)	\
Hematology analyzer			
Sysmex	2	-0.68 (-0.88--0.48)	0
Not reported	1	-0.18 (-0.26--0.11)	\
Sex			
Female	2	-0.43 (-0.95-0.09)	95
Male	1	-0.49 (-1.06-0.08)	\
NOS score			
7	2	-0.43 (-0.95-0.09)	95
8	1	-0.49 (-1.06-0.08)	\

SMD, standardized mean differences; CI, confidence interval; NOS, Newcastle-Ottawa Scale.

Table SIX. Corresponding pooled SMD range when single studies were removed.

Group	Corresponding pooled SMD range
NLR	
BC and non-BC	0.56-0.62
BC and healthy	0.49-0.58
BC and benign breast disease	0.66-0.74
PLR	
BC and non-BC	0.52-0.71
BC and healthy	0.52-0.63
BC and benign breast disease	0.42-1.14
LMR	
BC and non-BC	-0.19--0.52
BC and healthy	-0.21--0.68

SMD, standardized mean differences; NLR, neutrophil-to-lymphocyte ratio; PLR, platelet-to-lymphocyte ratio; LMR, lymphocyte-to-monocyte ratio; BC, breast cancer.

Table SX. Begg's test and Egger's test of blood indexes.

Group	Begg's test		Egger's test	
	z	P-value	t	P-value
NLR				
BC and non-BC	0.97	0.334	4.80	<0.001
BC and healthy	0.82	0.425	3.29	0.004
BC and benign breast disease	1.28	0.202	4.36	0.001
PLR				
BC and non-BC	1.94	0.053	2.35	0.033
BC and healthy	1.53	0.127	2.64	0.023
BC and benign breast disease	0.73	0.462	1.14	0.337

NLR, neutrophil-to-lymphocyte ratio; BC, breast cancer; PLR, platelet-to-lymphocyte ratio.

Table SXI. Results after trimming and filling.

Group	Iteration	To trim	After trimming and filling
			SMD (95% CI)
NLR			
BC and non-BC	7	15	1.29 (1.13-1.48)
BC and healthy	5	9	1.23 (1.02-1.49)
BC and benign	4	7	1.42 (1.14-1.76)
PLR			
BC and non-BC	6	8	1.25 (0.940-1.647)
BC and healthy	4	6	4.90 (0.296-8.00)

SMD, standardized mean differences; CI, confidence interval; NLR, neutrophil-to-lymphocyte ratio; BC, breast cancer; PLR, platelet-to-lymphocyte ratio.