

Table S1 Medline (Ovid) database search terms

No.	Search terms
1	review.pt.
2	(medline or medlars or embase or pubmed or cochrane).tw,sh.
3	(scisearch or psychinfo or psycinfo).tw,sh.
4	(psychlit or psyclit).tw,sh.
5	cinahl.tw,sh.
6	(hand adj2 search\$) or (manual\$ adj2 search\$).tw,sh.
7	(electronic database\$ or bibliographic database\$ or computeri?ed database\$ or online database\$).tw,sh.
8	(pooling or pooled or mantel haenszel).tw,sh.
9	(peto or dersimonian or der simonian or fixed effect).tw,sh.
10	(retraction of publication or retracted publication).pt.
11	or/2-10
12	1 and 11
13	meta-analysis.pt.
14	meta-analysis.sh.
15	(meta-analys\$ or meta analys\$ or metaanalys\$).tw,sh.
16	(systematic\$ adj5 review\$).tw,sh.
17	(systematic\$ adj5 overview\$).tw,sh.
18	(quantitativ\$ adj5 review\$).tw,sh.
19	(quantitativ\$ adj5 overview\$).tw,sh.
20	(quantitativ\$ adj5 synthesis\$).tw,sh.
21	(methodologic\$ adj5 review\$).tw,sh.
22	(methodologic\$ adj5 overview\$).tw,sh.
23	(integrative research review\$ or research integration).tw.
24	or/13-23
25	12 or 24
26	exp Life Style/
27	(life style or lifestyle\$).mp.
28	exp Alcohol Drinking/
29	exp Exercise/

30	exp Body Mass Index/
31	exp Smoking/
32	exp Diet/
33	exp Breast Feeding/
34	exp Hormone Replacement Therapy/
35	exp Contraceptives, Oral/
36	or/26-35
37	exp Breast Neoplasms/
38	(breast adj5 (cancer\$ or carcino\$ or tumo?r\$)).mp.
39	or/37-38
40	25 and 36 and 39

Table S2 Medline (ovid) database search results

No.	Search results
1	review.pt. 3208032
2	(medline or medlars or embase or pubmed or cochrane).tw,sh. 350541
3	(scisearch or psychinfo or psycinfo).tw,sh. 60356
4	(psychlit or psyclit).tw,sh. 918
5	cinahl.tw,sh. 45925
6	((hand adj2 search\$) or (manual\$ adj2 search\$)).tw,sh. 17151
7	(electronic database\$ or bibliographic database\$ or computeri?ed database\$ or online database\$).tw,sh. 59706
8	(pooling or pooled or mantel haenszel).tw,sh. 149567
9	(peto or dersimonian or der simonian or fixed effect).tw,sh. 10915
10	(retraction of publication or retracted publication).pt. 35220
11	or/2-10 540652
12	1 and 11 228210
13	meta-analysis.pt. 186515
14	meta-analysis.sh. 186515
15	(meta-analys\$ or meta analys\$ or metaanalys\$).tw,sh. 310282
16	(systematic\$ adj5 review\$).tw,sh. 340133
17	(systematic\$ adj5 overview\$).tw,sh. 3732
18	(quantitativ\$ adj5 review\$).tw,sh. 10726
19	(quantitativ\$ adj5 overview\$).tw,sh. 431
20	(quantitativ\$ adj5 synthesis\$).tw,sh. 4663
21	(methodologic\$ adj5 review\$).tw,sh. 8790
22	(methodologic\$ adj5 overview\$).tw,sh. 580
23	(integrative research review\$ or research integration).tw. 174
24	or/13-23 497684
25	12 or 24 584490
26	exp Life Style/ 111161
27	(life style or lifestyle\$).mp. 177351
28	exp Alcohol Drinking/ 78352

29	exp Exercise/ 248444
30	exp Body Mass Index/ 149670
31	exp Smoking/ 161586
32	exp Diet/ 330527
33	exp Breast Feeding/ 44201
34	exp Hormone Replacement Therapy/ 26444
35	exp Contraceptives, Oral/ 52114
36	or/26-35 1152160
37	exp Breast Neoplasms/ 344587
38	(breast adj5 (cancer\$ or carcino\$ or tumo?r\$)).mp. 413978
39	or/37-38 479374
40	25 and 36 and 39 1295
41	limit 40 to (English language and last 10 years) 799

Table S3 Search terms in EMBASE database

No.	Search terms
1	exp review/
2	(literature adj3 review\$).ti,ab.
3	exp meta analysis/
4	exp “Systematic Review”/
5	or/1-4
6	(medline or medlars or embase or pubmed or cinahl or amed or psychlit or psyclit or psychinfo or psycinfo or scisearch or cochrane).ti,ab.
7	RETRACTED ARTICLE/
8	6 or 7
9	5 and 8
10	(systematic\$ adj2 (review\$ or overview)).ti,ab.
11	(meta?anal\$ or meta anal\$ or meta-anal\$ or metaanal\$ or metanal\$).ti,ab.
12	9 or 10 or 11
13	exp Life Style/
14	(life style or lifestyle\$).mp.
15	exp Alcohol Drinking/
16	exp Exercise/
17	exp Body Mass Index/
18	exp Smoking/
19	exp Diet/
20	exp Breast Feeding/
21	exp Hormone Replacement Therapy/
22	exp Contraceptives, Oral/
23	or/13-22
24	exp breast cancer/
25	(breast adj5 (cancer\$ or carcino\$ or tumo?r\$)).mp.
26	24 or 25
27	12 and 23 and 26
28	limit 27 to (english language and “remove medline records” and last 10 years)

Table S4 Embase database search results

No.	Search results
1	exp review/ 3213021
2	(literature adj3 review\$.ti,ab. 477166
3	exp meta analysis/ 292298
4	exp "Systematic Review"/ 430149
5	or/1-4 3596665
6	(medline or medlars or embase or pubmed or cinahl or amed or psychlit or psyclit or psychinfo or psycinfo or scisearch or cochrane).ti,ab. 456055
7	RETRACTED ARTICLE/ 15338
8	6 or 7 470918
9	5 and 8 368037
10	(systematic\$ adj2 (review\$ or overview)).ti,ab. 392084
11	(meta?anal\$ or meta anal\$ or meta-anal\$ or metaanal\$ or metanal\$.ti,ab. 357310
12	9 or 10 or 11 676034
13	exp Life Style/ 165353
14	(life style or lifestyle\$.mp. 289277
15	exp Alcohol Drinking/ 58586
16	exp Exercise/ 460881
17	exp Body Mass Index/ 636775
18	exp Smoking/ 484349
19	exp Diet/ 453434
20	exp Breast Feeding/ 68942
21	exp Hormone Replacement Therapy/ 66354
22	exp Contraceptives, Oral/ 78693
23	or/13-22 2235144
24	exp breast cancer/ 581093
25	(breast adj5 (cancer\$ or carcino\$ or tumo?r\$)).mp. 774685
26	24 or 25 780316
27	12 and 23 and 26 2540
28	limit 27 to (English language and "remove medline records" and last 10 years) 702

Table S5 CINAHL (EBSCOhost) database search results

No.	Query	Limiters/expanders	Last run via	Results
S20	S14 AND S16 AND S17	Limiters - Publication Date: 20130101-20230831; English Language; Exclude MEDLINE records Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL Complete	248
S19	S14 AND S16 AND S17	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL Complete	620
S18	S14 AND S16 AND S17	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL Complete	620
S17	S1 OR S2 OR S3 OR S4 OR S5 OR S6 OR S7 OR S8 OR S9	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL Complete	751,261
S16	S10 OR S15	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL Complete	118,457
S15	“breast cancer”	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL Complete	107,350
S14	S11 OR S12 OR S13	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL Complete	239,984
S13	“systematic review”	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL Complete	185,058
S12	“meta-analysis”	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL Complete	111,202
S11	(MH “Literature Review+”)	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL Complete	139,506

S10	(MH Neoplasms+”)	“Breast	Expanders - equivalent subjects Search Boolean/Phrase	Apply modes -	Interface - Databases Search Screen - Advanced Search Database - CINAHL Complete	EBSCOhost	Research	97,383
S9	(MH Oral+”)	“Contraceptives,	Expanders - equivalent subjects Search Boolean/Phrase	Apply modes -	Interface - Databases Search Screen - Advanced Search Database - CINAHL Complete	EBSCOhost	Research	19,126
S8	(MH Replacement Therapy+”)	“Hormone	Expanders - equivalent subjects Search Boolean/Phrase	Apply modes -	Interface - Databases Search Screen - Advanced Search Database - CINAHL Complete	EBSCOhost	Research	11,005
S7	(MH “Breast Feeding+”)		Expanders - equivalent subjects Search Boolean/Phrase	Apply modes -	Interface - Databases Search Screen - Advanced Search Database - CINAHL Complete	EBSCOhost	Research	27,393
S6	(MH “Diet+”)		Expanders - equivalent subjects Search Boolean/Phrase	Apply modes -	Interface - Databases Search Screen - Advanced Search Database - CINAHL Complete	EBSCOhost	Research	140,076
S5	(MH “Smoking+”)		Expanders - equivalent subjects Search Boolean/Phrase	Apply modes -	Interface - Databases Search Screen - Advanced Search Database - CINAHL Complete	EBSCOhost	Research	78,711
S4	(MH “Body Index”) OR “Obesity+”)	Mass (MH	Expanders - equivalent subjects Search Boolean/Phrase	Apply modes -	Interface - Databases Search Screen - Advanced Search Database - CINAHL Complete	EBSCOhost	Research	175,351
S3	(MH “Exercise+”)		Expanders - equivalent subjects Search Boolean/Phrase	Apply modes -	Interface - Databases Search Screen - Advanced Search Database - CINAHL Complete	EBSCOhost	Research	129,343
S2	(MH Drinking+”)	“Alcohol	Expanders - equivalent subjects Search Boolean/Phrase	Apply modes -	Interface - Databases Search Screen - Advanced Search Database - CINAHL Complete	EBSCOhost	Research	36,209
S1	(MH “Life Style+”)		Expanders - equivalent subjects Search Boolean/Phrase	Apply modes -	Interface - Databases Search Screen - Advanced Search Database - CINAHL Complete	EBSCOhost	Research	275,589

Table S6 Research question formulation according to the PECOS

Variables	Formulation
Population	Women without (or assumed to be without) a personal history of breast or any other cancer
Exposure	Lifestyle factors: alcohol consumption, physical activity, diet and nutrition, body weight or BMI, smoking or tobacco consumption, HRT, OC, and breastfeeding
Controls/comparisons	Absence of lifestyle factors (unexposed)
Outcome	Breast cancer incidence
Study design	Systematic reviews

PECOS, population, exposure, control, outcomes, study design; HRT, hormone replacement therapy; OC, oral contraception.

Table S7 Quality assessment of the included SRs

First author, publication year (Ref.)	Item 1: PICO	©Item 2: Protocol	Item 3: Design	©Item 4: Search	Item 5: Selection	Item 6: Extraction	©Item 7: Exclusions	Item 8: Details (PICO, heterogeneity)	©Item 9 (RCTs): RoB	©Item 9 (NRSI): RoB	Item 10: Funding	©Item 11 (RCTs): MA	©Item 11 (NRSI): MA	Item 12: Assessment MA-RoB	Item 13: Discussion of RoB	Item 14: Heterogeneity	©Item 15: Publication bias	Item 16: Conflicts	Rating
Barańska <i>et al.</i> 2021 (54)	YES	NO	NO	Partial YES	YES	YES	YES	YES	–	YES	NO	–	YES	NO	YES	NO	YES	YES	L
Keum <i>et al.</i> 2015 (22)	YES	NO	YES	YES	YES	YES	YES	YES	–	NO	NO	–	YES	NO	YES	YES	YES	NO	CL
Kim <i>et al.</i> 2018 (62)	YES	NO	YES	YES	NO	YES	YES	YES	–	NO	NO	–	YES	NO	NO	YES	NO	YES	CL
Chen <i>et al.</i> 2016 (23)	YES	NO	YES	YES	YES	YES	YES	YES	–	YES	NO	–	YES	YES	YES	YES	YES	YES	L
Soltani <i>et al.</i> 2021 (24)	YES	YES	YES	YES	YES	YES	YES	YES	–	YES	NO	–	YES	YES	YES	YES	NO	YES	L
Jayasekara <i>et al.</i> 2016 (49)	YES	NO	YES	YES	NO	NO	NO	YES	–	NO	NO	–	YES	NO	NO	YES	YES	YES	L
Paudel <i>et al.</i> 2019 (36)	YES	YES	YES	YES	YES	YES	YES	YES	–	YES	NO	–	No MA	No MA	YES	YES	No MA	YES	H
Unar-Munguía <i>et al.</i> 2017 (67)	YES	Partial YES	NO	YES	NO	NO	YES	Partial YES	–	NO	NO	–	YES	YES	YES	YES	YES	YES	L
Islami <i>et al.</i> 2015 (68)	YES	NO	YES	YES	YES	YES	YES	YES	–	NO	NO	–	YES	YES	YES	YES	YES	YES	CL
Zhu <i>et al.</i> 2012 (55)	YES	NO	YES	YES	YES	YES	YES	YES	–	NO	NO	–	YES	NO	NO	YES	YES	YES	CL
Wu <i>et al.</i> 2013 (37)	YES	NO	YES	YES	YES	YES	YES	YES	–	NO	NO	–	YES	YES	YES	YES	YES	YES	CL
Chen <i>et al.</i> 2014 (46)	YES	Partial YES	NO	YES	YES	YES	NO	YES	–	YES	NO	–	YES	NO	YES	YES	YES	YES	M
Chen <i>et al.</i> 2017 (25)	YES	NO	NO	YES	YES	YES	YES	YES	–	YES	NO	–	YES	NO	YES	YES	YES	YES	L
Lee <i>et al.</i> 2021 (74)	YES	YES	NO	YES	YES	YES	YES	YES	–	YES	NO	–	YES	NO	YES	YES	YES	YES	M
Sun <i>et al.</i> 2020 (50)	YES	NO	YES	YES	YES	YES	YES	YES	–	YES	NO	–	YES	NO	NO	YES	YES	YES	L
Namiranian <i>et al.</i> 2014 (14)	YES	NO	NO	YES	NO	YES	YES	YES	–	YES	NO	–	YES	NO	NO	YES	YES	YES	L
Goncalves <i>et al.</i> 2014 (38)	YES	NO	NO	YES	NO	YES	YES	YES	–	YES	NO	–	YES	NO	NO	YES	NO	NO	CL
Gartlehner <i>et al.</i> 2022 (63)	YES	NO	YES	YES	YES	YES	YES	YES	YES		NO	YES		NO	NO	YES	NO	YES	CL
Chowdhury <i>et al.</i> 2015 (69)	YES	NO	NO	YES	YES	YES	YES	YES	–	YES	NO	–	YES	YES	YES	YES	YES	YES	L
Macacu <i>et al.</i> 2015 (47)	YES	NO	NO	YES	NO	NO	YES	YES	–	NO	NO	–	YES	NO	NO	YES	YES	YES	CL

Poorolajal <i>et al.</i> 2021 (8)	YES	NO	YES	YES	NO	NO	NO	YES	–	YES	NO	–	YES	NO	YES	YES	YES	YES	L
Pizot <i>et al.</i> 2015 (39)	YES	NO	YES	YES	YES	NO	YES	YES	–	NO	NO	–	YES	YES	YES	YES	YES	YES	CL
Schmid <i>et al.</i> 2014 (76)	YES	NO	YES	YES	NO	YES	YES	YES	–	YES	NO	–	YES	NO	YES	YES	YES	YES	L
Munsell <i>et al.</i> 2014 (21)	YES	NO	YES	Partial YES	NO	NO	YES	YES	–	NO	NO	–	YES	YES	YES	YES	YES	YES	CL
De Ridder <i>et al.</i> 2016 (26)	YES	NO	YES	YES	YES	YES	YES	YES	–	YES	NO	–	No MA	No MA	NO	NO	No MA	YES	L
Wang <i>et al.</i> 2016 (15)	YES	NO	NO	YES	YES	YES	YES	YES	–	NO	NO	–	YES	NO	YES	YES	YES	YES	CL
Youn <i>et al.</i> 2020 (35)	YES	NO	YES	YES	NO	NO	YES	YES	–	NO	NO	–	No MA	No MA	YES	NO	No MA	YES	CL
Vishwakarma <i>et al.</i> 2019 (31)	YES	NO	NO	YES	NO	NO	YES	YES	–	NO	NO	–	YES	NO	NO	NO	YES	YES	CL
Byun <i>et al.</i> 2022 (27)	YES	NO	YES	YES	YES	YES	YES	YES	–	YES	NO	–	YES	YES	YES	YES	YES	YES	L
Manouchehri <i>et al.</i> 2022 (70)	YES	NO	NO	YES	YES	YES	YES	YES	–	YES	NO	–	YES	NO	YES	YES	YES	YES	L
Fitzpatrick <i>et al.</i> 2023 (56)	YES	YES	YES	YES	YES	YES	YES	YES	–	NO	NO	–	YES	YES	YES	YES	YES	YES	L
Choi <i>et al.</i> 2018 (51)	YES	NO	YES	YES	YES	NO	YES	YES	–	YES	NO	–	YES	NO	NO	YES	NO	YES	CL
Hidayat <i>et al.</i> 2018 (28)	YES	NO	YES	YES	YES	YES	YES	YES	–	YES	NO	–	YES	YES	YES	YES	YES	YES	L
Gierisch <i>et al.</i> 2013 (57)	YES	NO	NO	YES	YES	YES	YES	YES	–	YES	NO	–	YES	NO	YES	YES	NO	YES	CL
Gao <i>et al.</i> 2013 (40)	YES	NO	NO	YES	YES	YES	YES	YES	–	YES	NO	–	YES	NO	YES	YES	YES	YES	L
Torres-de la Roche <i>et al.</i> 2020 (19)	YES	NO	NO	YES	NO	NO	YES	YES	–	NO	NO	–	No MA	No MA	YES	YES	No MA	YES	CL
Kanadys <i>et al.</i> 2021 (58)	YES	NO	NO	YES	NO	NO	YES	YES	–	YES	NO	–	YES	NO	YES	YES	YES	YES	L
Samson <i>et al.</i> 2016 (59)	YES	Partial YES	NO	YES	NO	NO	YES	YES	–	NO	NO	–	No MA	No MA	NO	NO	No MA	YES	L
Zahmatkesh <i>et al.</i> 2017 (32)	YES	NO	NO	YES	YES	YES	YES	Partial YES	–	YES	NO	–	YES	NO	NO	YES	YES	YES	L
Barańska <i>et al.</i> 2022 (60)	YES	NO	NO	YES	YES	NO	YES	YES	–	YES	NO	–	YES	NO	YES	YES	YES	YES	L
He <i>et al.</i> 2022 (48)	YES	YES	YES	YES	NO	YES	YES	YES	–	YES	NO	–	YES	YES	YES	YES	YES	YES	M
Zhou <i>et al.</i> 2015 (75)	YES	NO	YES	YES	YES	YES	YES	YES	–	YES	NO	–	YES	YES	YES	YES	YES	YES	L
Zhou <i>et al.</i> 2015 (71)	YES	NO	NO	NO	YES	YES	YES	YES	–	NO	NO	–	YES	YES	YES	YES	YES	YES	CL
Lambertini <i>et al.</i> 2016 (72)	YES	Partial YES	NO	YES	YES	YES	YES	YES	–	NO	NO	–	YES	NO	NO	YES	YES	YES	L

Khoramdad <i>et al.</i> 2022 (33)	YES	NO	YES	YES	YES	YES	YES	YES	-	YES	NO	-	YES	NO	YES	YES	YES	YES	L
Shen <i>et al.</i> 2014 (77)	YES	NO	YES	YES	YES	NO	YES	YES	-	NO	NO	-	YES	NO	NO	YES	YES	YES	CL
Liu <i>et al.</i> 2018 (29)	YES	NO	YES	YES	YES	YES	YES	YES	-	YES	NO	-	YES	YES	YES	YES	YES	YES	L
Shamshirian <i>et al.</i> 2020 (41)	YES	YES	NO	YES	YES	YES	YES	YES	-	YES	NO	-	YES	NO	NO	YES	NO	YES	L
Goldstajn <i>et al.</i> 2023 (64)	YES	NO	YES	YES	YES	YES	YES	YES	-	YES	NO	-	No MA	No MA	YES	YES	No MA	YES	L
Chong <i>et al.</i> 2021 (73)	YES	NO	YES	YES	NO	YES	YES	YES	-	YES	NO	-	YES	NO	YES	YES	YES	YES	L
Neilson <i>et al.</i> 2017 (42)	YES	YES	YES	YES	YES	YES	YES	YES	-	YES	NO	-	YES	NO	YES	YES	YES	YES	M
Anothaisintawee <i>et al.</i> 2013 (61)	YES	NO	NO	YES	NO	NO	YES	YES	-	NO	NO	-	YES	NO	YES	YES	NO	YES	CL
Nindrea <i>et al.</i> 2017 (16)	YES	NO	NO	YES	NO	NO	YES	YES	-	NO	NO	-	YES	NO	NO	NO	YES	NO	CL
Bagnardi <i>et al.</i> 2015 (52)	YES	NO	NO	YES	NO	NO	YES	YES	-	NO	NO	-	YES	NO	YES	YES	NO	YES	CL
Hardefeldt <i>et al.</i> 2018 (20)	YES	NO	YES	YES	YES	YES	YES	Partial YES	-	NO	NO	-	YES	NO	NO	YES	YES	YES	CL
Liu <i>et al.</i> 2016 (43)	YES	NO	NO	YES	NO	YES	YES	YES	-	YES	NO	-	YES	NO	YES	YES	YES	YES	L
Chen <i>et al.</i> 2019 (44)	YES	NO	YES	YES	YES	YES	YES	YES	-	YES	NO	-	YES	YES	YES	YES	YES	YES	L
Armenta-Guirado <i>et al.</i> 2023 (78)	YES	YES	YES	YES	YES	YES	YES	YES	-	YES	NO	-	YES	YES	YES	YES	YES	YES	H
Asi <i>et al.</i> 2016 (65)	YES	Partial YES	NO	YES	YES	YES	YES	YES	-	YES	NO	-	YES	NO	YES	YES	NO	YES	L
Neil-Sztramko <i>et al.</i> 2017 (17)	YES	NO	YES	YES	YES	YES	YES	YES	-	YES	NO	-	YES	YES	YES	YES	NO	YES	CL
Bagnardi <i>et al.</i> 2013 (53)	YES	NO	NO	YES	NO	NO	YES	YES	-	NO	NO	-	YES	NO	NO	YES	YES	YES	CL
Bae <i>et al.</i> 2015 (66)	YES	NO	YES	YES	NO	NO	YES	YES	-	NO	NO	-	YES	NO	NO	YES	YES	YES	CL
Xia <i>et al.</i> 2014 (30)	YES	NO	NO	YES	NO	NO	YES	YES	-	NO	NO	-	YES	NO	NO	YES	YES	YES	CL
Amadou <i>et al.</i> 2013 (18)	YES	NO	YES	YES	NO	NO	YES	YES	-	YES	NO	-	YES	NO	YES	YES	YES	YES	L
Momenimovahe d <i>et al.</i> 2019 (34)	YES	NO	NO	YES	NO	NO	YES	NO	-	NO	NO	-	No MA	No MA	NO	NO	No MA	YES	CL
Hidayat <i>et al.</i> 2020 (45)	YES	NO	YES	YES	YES	YES	YES	YES	-	NO	NO	-	YES	YES	YES	YES	YES	YES	CL

SR, systematic review; PICO, population, interventions, control group and outcome; RCT, randomized control trial; RoB, risk of bias; NSRI, non-randomized studies of interventions; MA, meta-analyses; L, low; CL, critically low; H, high; M, medium.

Table S8 Estimates of included SRs to determine the association between lifestyle factors and breast cancer incidence

First author, publication year (Ref.)	Exposure	Estimates (OR, RR, HR)	Heterogeneity
Barańska <i>et al.</i> 2021 (54)	OC	OR with 95% CI: OC use, 1.15 (1.01–1.31)	I ² =92.32%
Keum <i>et al.</i> 2015 (22)	Adult weight gain and adiposity	RR with 95% CI: Each 5 kg adult weight gain, 1.11 (1.08–1.13) for postmenopausal BC among no/low HRT users	I ² = 21.7%
Kim <i>et al.</i> 2018 (62)	HRT	HR with 95% CI: HRT use increase BC risk, 1.33 (1.24–1.44)	I ² = 96.5% (given in the forest plot)
Chen <i>et al.</i> 2016 (23)	Central obesity (WC or WHR)	RR with 95% CI: For each 10 cm increase of WC, postM BC, 1.06 (1.04–1.09, n=14) and for 0.1 unit increase of WHR. postM BC, 1.07 (1.01–1.14, n=15); preM BC, no such association.	WC: I ² =29.9%, WHR: I ² = 52.9% for postmenopausal BC
Soltani <i>et al.</i> 2021 (24)	BMI	RR with 95% CI: 5-unit increase in BMI (kg/m ²), 1.12 (1.05–1.20)	I ² =0
Jayasekara <i>et al.</i> 2016 (49)	Alcohol	RR with 95% CI: A non-linear dose-response relationship with BC, 1.28 (1.07–1.52)	I ² =73.9% for CC
Paudel <i>et al.</i> 2019 (36)	PA	No MA	No MA
Unar-Munguía <i>et al.</i> 2017 (67)	BF	RR with 95% CI: Any mode of BF vs. never BF, 0.84 (0.62–1.13). Exclusive BF vs. never BF, 72 (0.58–0.90), Parous women any mode of BF: preM,	I ² =0

		0.86 (0.80–0.93) and postM, 0.89 (0.83–0.95)	
Islami <i>et al.</i> 2015 (68)	BF	OR with 95% CI: Ever vs. never BF for ER– and PR–: 0.90 (0.82–0.99), for TNBC: 0.78 (0.66–0.91) among parous women	Little
Zhu <i>et al.</i> 2012 (55)	OC	RR with 95% CI: Ever vs. never OC use, 1.08 (0.99–1.17). For 10 years increase use of OC, 1.14 (1.05–1.23)	I ² =61.4% Little in dose-response
Wu <i>et al.</i> 2013 (37)	PA	RR with 95% CI: Overall, 0.88 (0.85–0.91); non-occupational activity, 0.87 (0.83–0.91); occupational activity, 0.90 (0.83–0.97).	I ² <50% (low to moderate)
Chen <i>et al.</i> 2014 (46)	Smoking	OR with 95% CI: passive smoking, 1.62 (1.39–1.85, n=26); non-significant for active smoking, 1.04 (0.89–1.20, n=31)	High: I ² =75.8
Chen <i>et al.</i> 2017 (25)	BMI	RR with 95% CI: PostM, 1.33 (1.20–1.48) and preM, 0.94 (0.80–1.11). For normal BMI (21.5 kg/m ²) in total postM, 1.03 (1.02–1.05) per 1 kg/m ² increment	Premenopausal I ² =49% and post: I ² =66%
Lee <i>et al.</i> 2021 (74)	SB (Sedentary work)	RR with 95% CI: overall, 1.16 (1.08–1.23); For cohort study, 1.20 (1.10–1.30); case-control study-1.12 (1.02–1.23)	Overall, I ² =68%; cohort: I ² =69%; case-control: I ² =53%
Sun <i>et al.</i> 2020 (50)	Alcohol	RR with 95% CI: adding 10 g/d of total alcohol, 1.10 (1.08–1.13); wine, 1.08 (1.04–1.14). For postM, 1.11	I ² =64.7%

		(1.09–1.13) in total alcohol	
Namiranian <i>et al.</i> 2014 (14)	Alcohol, PA, BMI, Smoking, Meat consumption, various reproductive factors, and years of education	OR with 95% CI: history of no live birth (2.25, 1.58–3.18), BMI>30 kg/m ² (2.21, 1.71–2.36), age at first pregnancy >30 years (1.52, 1.30–1.77) and meat consumption >3 times/week (1.39, 1.03–1.87)	BMI: I ² =15%–22%; smoking: I ² =93%; meat consumption: I ² =0
Goncalves <i>et al.</i> 2014 (38)	PA	OR with 95% CI: CC studies, 0.84 (0.81–0.88) and cohort studies, OR=0.61 (95% CI: 0.59–0.63)	CC: I ² =72%; C: I ² =100%
Gartlehner <i>et al.</i> 2022 (63)	HRT	Risks, per 10,000 persons, significantly increased for invasive BC [242 vs. 191 cases; 51 more (95% CI, 6–106)]	High
Chowdhury <i>et al.</i> 2015 (69)	BF	OR with 95% CI: ever vs. never BF, 0.78 (0.74–0.82); no vs. <6 month, 0.93 (0.88–0.99); no vs. <12 months, 0.91 (0.87–0.96); no vs. >12 months, 0.77 (0.72–0.83)	I ² =71.9%
Macacu <i>et al.</i> 2015 (47)	Smoking	RR with 95% CI: Ever active smoking, 1.10 (1.09–1.12, n=27 PS), and 1.08 (1.02–1.14, n=44 RS). Current active smoking, 1.13 (1.09–1.17, n=27 PS) and 1.08 (0.97–1.20, n=22 RS), ever passive smoking, 1.07 (1.02–1.13, n=11 PS) and 1.30 (1.10–1.54, n=20 RS)	Prospective: no (I ² =0); retrospective: high (I ² =59%)

Poorolajal <i>et al.</i> 2021 (8)	Alcohol, PA, BMI, smoking, meat/fruit consumption, BF, OC, HRT, nulliparity, late pregnancy, ET, PT, EPT	RR with 95% CI: smoking, 1.07 (1.05–1.09); alcohol, 1.10 (1.07–1.12); PA, 0.90 (0.86–0.95); overweight/obesity: preM, 0.92 (0.82–1.03) and postM, 1.18 (1.13–1.24); nulliparity, 1.16 (1.03–1.31); late pregnancy, 1.37 (1.25–1.50); BF, 0.87 (0.81–0.93). Ever using: OC, 1.00 (0.96–1.05); ET, 1.13 (1.04–1.23); PT, 1.02 (0.84–1.24); EPT, 1.60 (1.42–1.80); HRT, 1.26 (1.20–1.32); red meat, 1.05 (1.00–1.11); fruit/vegetable, 0.87 (0.83–0.90)	Varied by factors
Pizot <i>et al.</i> 2015 (39)	PA, HRT	RR with 95% CI: highest vs. lowest level of PA, 0.88 (0.85–0.90), for ER+/PR+ BC, 0.89 (0.83–0.95) and for ER–/PR– BC, 0.80 (0.69–0.92). Never HRT users, 0.78 (0.70–0.87); ever HRT users, 0.97 (0.88–1.07)	PA: moderate ($I^2=29\%$), HRT: not quantified (present)
Schmid <i>et al.</i> 2014 (76)	TV viewing or other SB	RR with 95% CI: non-significant association, 1.03 (0.95–1.12)	$I^2=27.4\%$
Munsell <i>et al.</i> 2014 (21)	BMI, HRT	RR with 95% CI: HR+ BC: PreM, 0.78 (0.67–0.92) and PostM, 1.39 (1.14–1.70) for obesity. Non-significant HR– BC: preM, 1.06 (0.70–1.60) and postM, 0.98 (0.78–1.22) for obesity	Obesity vs. control: $I^2=71.7\%$, overweight vs. control: $I^2=37.9\%$
De Ridder <i>et al.</i> 2016 (26)	BMI, Abdominal adiposity	No MA	No MA

Wang <i>et al.</i> 2016 (15)	BMI	RR with 95% CI: For every 5 kg/m ² in BMI: Overall, 1.07 (1.05–1.09); PreM, 0.99 (0.97–1.01); PostM, 1.11 (1.08–1.14)	I ² =80.8%; PreM: I ² =35.2%; PostM: I ² =71.0%
Youn <i>et al.</i> 2020 (35)	BMI, Smoking, age, family history, menstrual factors, multiple diet factors	No MA	No MA
Vishwakarma <i>et al.</i> 2019 (31)	BMI, BF	OR with 95% CI: never BF, 3.69 (1.70–8.01); menopausal age >50 years, 2.88 (1.85–3.85); menarche age 25 years, 1.57 (1.37–1.80); family history of BC, 5.33 (2.89–9.82); obesity, 1.19 (1.00–1.42), and urban residence, 1.22 (1.03–1.44)	Varied by factors
Byun <i>et al.</i> 2022 (27)	BMI (early life BMI)	RR with 95% CI: every 5-kg/m ² in early-life BMI increase, 0.84 (0.81–0.87)	I ² =63.4%
Manouchehri <i>et al.</i> 2022 (70)	Menstrual and reproductive factors	OR with 95% CI: BF, 0.68 (0.42–1.09); first pregnancy>20 years, 1.79 (1.36–2.35); PostM vs. PreM, 1.60 (1.18–2.17); menarche<12 years, 0.55 (0.29–1.03); history of abortion, 1.21 (0.97–1.5); nulliparity, 1.43 (0.89–2.31)	I ² =81.3% for BF
Fitzpatrick <i>et al.</i> 2023 (56)	OC	OR with 95% CI: last hormonal contraceptive: oral combined, 1.23 (1.14–1.32); oral progestagen-only, 1.26 (1.16–1.37). Current or recent use of	I ² =6.7%–22.5%

		progestagen-only: oral, 1.29 (1.21–1.37); injected, 1.18 (1.07–1.30)	
Choi <i>et al.</i> 2018 (51)	Alcohol	RR with 95% CI: very light (≤ 0.5 drink/d), 1.04 (1.01–1.07, n=20); light (≤ 1 drink/d), 1.09 (1.06–1.12, n=25); moderate drinking (1–2 drinks/d), 1.13 (1.11–1.15, n=15)	$I^2=0-32.8\%$
Hidayat <i>et al.</i> 2018 (28)	BMI	RR with 95% CI: body fatness at young (≤ 30 years) age: For 5 kg/m ² BMI increase, 0.86 (0.82–0.90); PreM, 0.88 (0.81–0.95); PostM, 0.83 (0.77–0.89). Body fatness gain and the risk of BC: Each 5 kg/m ² increase in BMI, 1.13 (1.05–1.20); Pre, 1.14 (1.06–1.23, n=5); post, 1.01 (0.84–1.20, n=2)	substantial ($I^2=81.2\%$ for body fatness at young age)
Gierisch <i>et al.</i> 2013 (57)	OC	OR with 95% CI: Ever vs. never use of OC, 1.08 (1.00–1.17)	Significant (Q=73.35 for 21 DF)
Gao <i>et al.</i> 2013 (40)	Alcohol, PA, Tea consumption	OR with 95% CI: tea drinking, 0.79 (0.65–0.95; n=16); regular PA, 0.73 (0.63–0.85, n=15); alcohol drinking, 0.85 (0.72–1.02, n=26)	Tea: $I^2=84.9\%$; PA: $I^2=77.3\%$; alcohol: $I^2=63.8\%$
Torres-de la Roche <i>et al.</i> 2020 (19)	BMI	No MA	No MA
Kanadys <i>et al.</i> 2021 (58)	OC	OR with 95% CI: Ever vs. never users, 1.01 (0.95–1.07)	$I^2=83.4\%$
Samson <i>et al.</i> 2016	OC	No MA	No MA

(59)

Zahmatkesh <i>et al.</i> 2017 (32)	BMI	OR with 95% CI: obesity, 1.81 (1.24–2.64); overweight, 1.46 (1.13–1.89)	Obesity: I ² =76%; overweight: I ² =58.9%
Barańska <i>et al.</i> 2022 (60)	OC	OR with 95% CI: TNBC, 1.37 (1.13–1.67); ER–BC, 1.20 (1.03–1.40); ER+BC, 0.92 (0.86–0.99) and HER2+BC, 0.95 (0.79–1.14)	Substantial (varied by subtypes)
He <i>et al.</i> 2022 (48)	Smoking	OR with 95% CI: Active smoking, 1.15 (1.11–1.20); passive smoking, 1.17 (1.09–1.24)	I ² =54.9%
Zhou <i>et al.</i> 2015 (75)	SB	OR with 95% CI: 1.08 (1.04–1.13)	I ² =0
Zhou <i>et al.</i> 2015 (71)	BF	RR with 95% CI: Ever vs. never BF, 0.61 (0.44–0.85). Longest vs. shortest duration, 0.47 (0.37–0.60)	Potential
Lambertini <i>et al.</i> 2016 (72)	BF, reproductive factors	OR with 95% CI: parity, 0.75 (0.70–0.81); advanced age at 1 st birth, 1.15 (1.00–1.32); ever BF, 0.77 (0.66–0.88) associated with luminal sub-type. BF reduce TNBC, 0.79 (0.66–0.94)	Varied by factors
Khoramdad <i>et al.</i> 2022 (33)	BMI, Smoking, OC, other risk factors	OR with 95% CI: Obesity, 2.17, (1.47–3.21); passive smoking, 1.86 (1.58–2.19); smoking, 1.83, (1.41–2.38); family history of BC, 2.47 (1.83–3.33)	Varied by factors
Shen <i>et al.</i> 2014 (77)	SB	RR with 95% CI: 1.17 (1.03–1.33)	I ² =13.6%
Liu <i>et al.</i> 2018 (29)	BMI	RR with 95% CI: 5 kg/m ² increase in BMI, 1.02 (1.01–1.04); preM, 0.98 (0.96–0.99)	I ² =74.2%
Shamshirian <i>et al.</i> 2020	PA, Smoking, various	OR with 95% CI: Family history, 1.80 (1.47–2.12);	Varied by factors

(41)	diet factors, BF, HRT	HRT, 5.48 (2.71–8.25); passive smokers, 1.68 (1.34–2.03). 13–24 months of BF, 0.68 (0.46–0.90); daily exercise, 0.59 (0.44–0.73) and vegetable, 0.28 (0.10–0.46).	
Goldstajn <i>et al.</i> 2023 (64)	HRT	No MA (no association based on transdermal vs. oral use)	Present
Chong <i>et al.</i> 2021 (73)	SB	RR with 95% CI: Highest vs. shortest duration, 1.08 (0.99–1.19); prolonged TV viewing, 1.08 (0.99–1.17). For 1 h/d increment of SB, 1.01 (1.00–1.02); TV viewing, 1.02 (1.00–1.04)	I ² =62.2%
Neilson <i>et al.</i> 2017 (42)	PA	RR with 95% CI: higher vs. lower PA: preM, 0.80 (0.74–0.87, n=43); postM, 0.79 (0.74–0.84, n=58). PostM cohort studies, 0.90 (0.85–0.95). Dose-response curves were nonlinear.	PreM: I ² =71.1% and PostM: I ² =76.1%
Anothaisintawee <i>et al.</i> 2013 (61)	BF, OC, HRT, DM	OR with 95% CI: OC, 1.10 (1.03–1.18); HRT, 1.23 (1.21–1.25); DM, 1.14 (1.09–1.19) and ever BF, 0.72 (0.58–0.89)	Varied by factors
Nindrea <i>et al.</i> 2017 (16)	BMI, BF, OC, parity, family history of BC, age and menopausal status	OR with 95% CI: nulliparous, 1.85 (1.47–2.32); overweight, 1.61 (1.43–1.80); OC, 1.27 (1.07–1.51) and BF, 0.78 (0.59–1.03). Family history, 2.53 (1.25–5.09); age (≥40 years), 1.53 (1.34–1.76)	BMI: Chi ² =2.85, OC: Chi ² =2.16 and BF: Chi ² =15.6
Bagnardi <i>et al.</i> 2015	Alcohol	RR with 95% CI: Light, 1.04 (1.01–1.07); moderate,	Light drinking: I ² =69%

(52)		1.23 (1.19–1.28) and heavy drinking 1.61 (1.33–1.94)	
Hardefeldt <i>et al.</i> 2018 (20)	PA, weight loss	OR with 95% CI: overall PA, 0.78 (0.76–0.81); high-intensity PA, 0.73 (0.65–0.81); low-intensity PA, 0.79 (0.72–0.86). General PA for preM, 0.79 (0.73–0.87); postM, 0.82 (0.78–0.86). Weight loss-0.82 (0.67–0.97)	I ² =85.54%
Liu <i>et al.</i> 2016 (43)	Leisure time PA	RR with 95% CI: Overall, 0.88 (0.84–0.91); preM, 0.79 and postM, 0.89, respectively. Invasive BC: 0.85 (0.78–0.92)	I ² =19.2%
Chen <i>et al.</i> 2019 (44)	PA	RR with 95% CI: 0.87 (0.84–0.90)	I ² =41%
Armenta-Guirado <i>et al.</i> 2023 (78)	Healthy lifestyle indices	HR with 95% CI: highest vs. lowest score: 0.80 (0.78–0.83) for prospective studies, 0.74 (0.63–0.86) for retrospective studies	I ² =65.8%
Asi <i>et al.</i> 2016 (65)	HRT (progesterone vs. synthetic progestin's)	Progesterone lower BC risk compared to synthetic progestin's when each is given in combination with estrogen, RR: 0.67 (95% CI: 0.55–0.81)	I ² =42%
Neil-Sztramko <i>et al.</i> 2017 (17)	PA, BMI	RR with 95% CI: postM (high vs. low): PA for BMI<25 kg/m ² , (0.85, 0.79–0.92); BMI≥25 kg/m ² , (0.87, 0.81–0.93); BMI≥30 kg/m ² , (0.93, 0.76–1.13). PreM: PA was not associated with BC risk reduction in any BMI group.	Varied by sub-group
Bagnardi <i>et al.</i> 2013	Alcohol (light drinking)	RR with 95% CI: 1.05 (1.02–1.08)	I ² >50%

(53)			
Bae <i>et al.</i> 2015 (66)	HRT	OR with 95% CI: 0.98 (0.62–1.56)	I ² =70.2%
Xia <i>et al.</i> 2014 (30)	BMI	RR with 95% CI: PostM BMI of 25, 30, and 35 kg/m ² 1.02 (0.98–1.06), 1.12 (1.01–1.24), and 1.26 (1.07–1.50). Inverse non-significant association in preM	PostM: P<0.0001; PreM: P=0.061
Amadou <i>et al.</i> 2013 (18)	BMI (WHR, height, WC)	RR with 95% CI: For each 5 kg/m ² increase in BMI: preM BC, 0.95 (0.94–0.97); African, 0.95 (0.91–0.98); Caucasians, 0.93 (0.91–0.95). For 0.1 unit increase in WHR: preM BC, 1.08 (1.01–1.16)	BMI: I ² =61.2%; WHR: I ² =75.8%
Momenimovahed <i>et al.</i> 2019 (34)	Alcohol, PA, BMI, smoking, multiple diet factors	No MA	No MA
Hidayat <i>et al.</i> 2020 (45)	PA	RR with 95% CI: Higher PA at young age (age≤30 years): 0.81 (0.76–0.87), lifetime PA: 0.79 (0.72–0.86)	I ² =80.6%

SR, systematic review; OR, odds ratio; RR, relative risk; HR, hazard ratio; preM, premenopausal; postM, postmenopausal; OC, oral contraception; 95% CI, 95% confidence interval; BC, breast cancer; HRT, hormone replacement therapy; WC, waist circumference; WHR, waist-to-hip ratio; BMI, body mass index; PA, physical activity; BF, breastfeeding; ER, estrogen receptor; PR, progesterone receptor; SB, sedentary behavior; ET, estrogen; PT, progesterone; EPT, estrogen/progesterone; MA, meta-analysis.