

Table S1 Important characteristics of the included studies

Study	N	Condition	Age (years)	BMI (kg/m ²)	DHEAS (µg/dL)	AND (nmol/L)	Testosterone (nmol/L)	FSH (IU/mL)	LH (IU/mL)	LH/FSH ratio	AMH (ng/mL)	Hirsutism score	FI	VI	VFI	PI	RI	Ovarian volume (mL)	AFC/OR
Adali 2009	55	PCOS	23.7±3	27.4±4.7	201±83		TT 2±1.14	–	–	2.24±0.6	–	10.5±4.6	–	–	–	1.4±0.63	–	10.6±3.6	
Al-Rab 2015	30	PCOS	30.5±1.4	29.1±1.2	135±12	–	2.8±0.2	4.3±1.2	11.4±1.4	2.65±0.3	–	–	57.4±4.6	4.29±1.8	2.1±0.5	–	–	18.9±1.7cm ³	22±2.5
Battaglia 1998a	34	PCO	24±2	23.5±4.5	–	15±2.6	2.3±1	3.7±1	12.3±4	3.3±0.5	–	13	–	–	–	–	–	13±4.6	11.8±3.1
Battaglia 1998b	30	PCOS	24.3±4.1	25.1±2.8	–	13±0.8	2±0.2	5±0.6	10.5±3.7	3±0.6	–	23±4	–	–	–	0.7±0.4	–	11.3±1	14±0.7 SC
Battaglia 1999	30	PCOS	23.5±1.8	–	–	14±12	0.55±0.45	3.6±1.9	13±2.5	3.7±0.3	–	–	–	–	–	–	–	11.6±1.8	11.6 ±2 SC
Battaglia 2012	112	PCOS	26.2±4.6	20.8±2	–	13.1±3.7	1.6±0.5	–	–	–	–	13.4±4.1	35.5%±5%	4.2%±2.5%	2.3%±1.5%	–	–	12.6±3.5	
Bostanci 2013	20	PCOS	25.7±3.1	23.9±1.5	280±97	4.73±1.4	TT 0.92±0.6, FT 6.96±2.5	5.5±2.1	–	–	–	8.7±1.8	–	–	–	–	–		
Carmina 2005	326	PCOS	25.8±0.5	28.9±0.6	155.6±11.5	–	3.1±0.2	–	13.8±1	2.4±0.3	–	–	–	–	–	–	–	12.2±1cm ³	
Dhingra 2017	35	PCOS	23.3±3.3	–	66.3±25.9	–	1.41±0.71	7.4±5.3	9.5±7.1	1.39±0.8	–	7.9±1.7	–	–	–	0.96±0.19	–	11.8±1.4	11.7±2.4
Elmashad 2011	23	PCOS	28.8±3.1	29.2±2.6	–	–	4.2±0.4	4.2±1.3	11.7±1.3	2.8±0.4	7.4±4.6	–	52.4±4.3	4.8±1.3	2.9±0.43	–	–	13.8±2.1	29±2.4
El-Sattar 2019	49	PCOS	27.5±2.7	27±2.5	–	–	–	5.14±1	7.4±1.5	–	–	–	–	–	–	1.7±0.8	0.83±0.7		
Elsayed 2014	150	PCOS	24±3.3	28±3.4	233±71	–	2.96±0.57	5.7±1.1	9.9±2.9	–	3.2±1.7	–	–	–	–	0.95±0.21	–	10.8±2.7cm ³	
Jadaon 2012	168	IVF	30.4±5.4	26.2±6.3	–	–	–	6.9±2.4	5.1±2.4	1.72±1.1	–	–	–	–	–	0.94±0.26	0.58±0.09	9.1±4	8.5±5.5
Jarvela 2003	45	IVF	36±3.6	–	–	–	–	6.7±2	4±2	0.7±0.4	–	–	–	–	–	–	–		12±6
Kamal 2018	80	PCOS	28.2±5	28±1.5	–	12±2	11.7±4.3	3.34±1	9.9±4.7	2.9±0.8	8.3±2.2	–	27±1.3	1.88±0.37	1.34±0.29	–	–	14±2	19.6±4
Kupesic 2002	56	IVF	34.1±5.1	21.3±1	–	–	–	7.2±.3	–	–	–	–	12.6±0.6	–	–	–	–	8.23±1.3	9.43±3.5
Makled 2014	60	PCOS	25.5±2.1	31.2±4.8	–	–	FT 0.96±0.26	8.7±2.5	10.7±2.7	1.26±0.3	–	8.5±3.4	32.7%±4.4%	4.7%±1.37%	1.54%±0.69%	–	–	8.8±1.7	
Malhotra 2014	254	PCOS	31.3±3.9	24.8±3.5	–	–	–	6.4±2.1	5.4±3.3	–	4.3±3	–	–	–	–	0.7±0.5	0.4±0.3		6.5±4
Merce 2006	80	IVF/ICSI	34±3.5	–	–	–	–	–	–	–	–	–	64.2±9.2	21.2±9.5	7.6±3.5	–	–	57±21	13.1±6.3
Ng 2005a	32	PCOS	31±4	23±4.5	–	–	–	5.1±2.3	6.1±5.2	–	–	–	29.3%±3.9%	3.80%±6.2%	0.7%±2%	–	–	21±8 tot	38.5±14
Ng 2005b	136	IVF	34.5±2.5	20.9±2.2	–	–	–	6.3±1	–	–	–	–	–	–	–	–	–		9±2.5
Ng 2006	71	PCO/S	32±3	23.5±3	–	–	–	–	–	–	–	–	29.3%±3%	3%±4%	0.7%±1.5%	–	–	17.7±6.2	33±9.5
Ozdemir 2015	40	PCOS	22.3±5.1	24.4±3	323±112	–	TT 1.6±0.49, FT 9.5±3.8	6.6	12.5±4.2	1.89±1.1	–	11.1±4.2	–	–	–	0.89±0.07	0.48±0.05	11.4±4.8	
Ozdemir 2015	40	PCO	22.7±5.9	22.5±3.5	242±83	–	TT 0.87±0.35, FT 6.3±2.2	6.9	6±2.1	1.12±0.7	–	6±2	–	–	–	1.3±0.27	0.82±0.11	4.9±2.4	
Ozkan 2007	43	PCOS	21.4±1.9	23.5±4.7	260±118	–	TT 3.3±1.84	–	–	1.45±0.7	–	13.4±5	–	–	–	–	–		
Pascual 2008	38	PCO	27±5.7	23.3±3.7	–	–	–	–	–	–	–	–	–	–	–	–	–		
Sahu 2019	101	PCOS	27±4.8	25.7±2.7	245±81	–	TT 2.4±0.5	6.7	11.3	–	–	8±2	–	–	–	1.23±0.32	0.54±0.1		
Shaban 2014	212	IVF/ICSI	31.7±4.3	24.1±2.4	–	–	–	7.2	6.17	–	–	–	25%±3%	3.5%±1.5%	1.5%±0.7%	–	–		8.28±1.5

Values after ± sign are standard deviations of preceding values. Values after ± sign are standard deviations of preceding values. BMI, body mass index; DHEAS, dehydroepiandrosterone; AND, androstenedione; FSH, follicle stimulating hormone; LH, luteinizing hormone; AMH, anti-Mullerian hormone; FI, flow index; VI, vascularization index; VFI, vascularization flow index; PI, pulsatility index; RI, resistance index; AFC/OR, antral follicle count/oocyte retrieved; PCOS, polycystic ovarian syndrome; TT, total testosterone; PCO, polycystic ovary; FT, free testosterone; IVF, in vitro fertilization; ICSI, intracytoplasmic sperm injection; SC, subcapsular.

Table S2 Quality assessment of the included studies with NIH Quality Assessment Tool for Observational Cohort and Cross-Sectional Studies

Criteria	Adali 2009	Al-Rab 2015	Battaglia 1998a	Battaglia 1998b	Battaglia 1999	Battaglia 2012	Bostanci 2013	Carmina 2005	Dhingra 2017	Elmashad 2011	El-Sattar 2019	Elsayed 2014	Jadaon 2012	Jarvela 2003	Kamal 2018	Kupesic 2002	Makled 2014	Malhotra 2014	Merce 2006	Ng 2005a	Ng 2005b	Ng 2006	Ozdemir 2015	Ozkan 2007	Pascual 2008	Sahu 2019	Shaban 2014
1. Was the research question or objective in this paper clearly stated?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
2. Was the study population clearly specified and defined?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
3. Was the participation rate of eligible persons at least 50%?	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4. Were all subjects selected or recruited from the same or similar populations (including the same time period)? Were inclusion and exclusion criteria for being in the study prespecified and applied uniformly to all participants?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
5. Was a sample size justification, power description, or variance and effect estimates provided?	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	N	N	N	N	N	N	N	N	N	N
6. For the analyses in this paper, were the exposure(s) of interest measured prior to the outcome(s) being measured?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
7. Was the timeframe sufficient so that one could reasonably expect to see an association between exposure and outcome if it existed?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
8. For exposures that can vary in amount or level, did the study examine different levels of the exposure as related to the outcome (e.g., categories of exposure, or exposure measured as continuous variable)?	N	Y	N	N	N	N	N	N	N	Y	N	N	N	N	Y	N	Y	N	N	N	N	N	N	N	N	N	Y
9. Were the exposure measures (independent variables) clearly defined, valid, reliable, and implemented consistently across all study participants?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
10. Was the exposure(s) assessed more than once over time?	N	Y	N	N	N	N	N	N	N	Y	N	N	N	N	Y	N	Y	N	N	N	N	N	N	N	N	N	Y
11. Were the outcome measures (dependent variables) clearly defined, valid, reliable, and implemented consistently across all study participants?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
12. Were the outcome assessors blinded to the exposure status of participants?	N	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	Y	N	N	N	N	N	Y	N	N	Y	N
13. Was loss to follow-up after baseline 20% or less?	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14. Were key potential confounding variables measured and adjusted statistically for their impact on the relationship between exposure(s) and outcome(s)?	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NIH, National Institutes of Health; Y, yes; NA, not applicable; N, no.

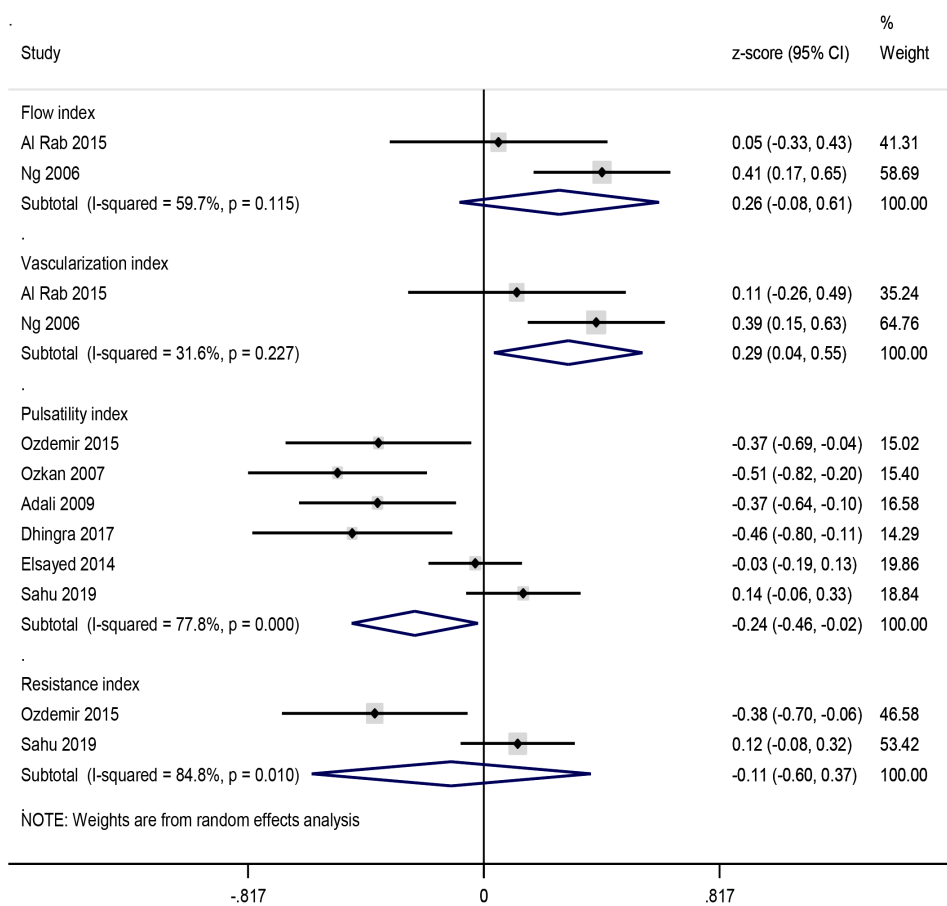


Figure S1 Forest graph showing the pooled z-scores of the correlations between dehydroepiandrosterone and Doppler ultrasonography indices. CI, confidence interval.

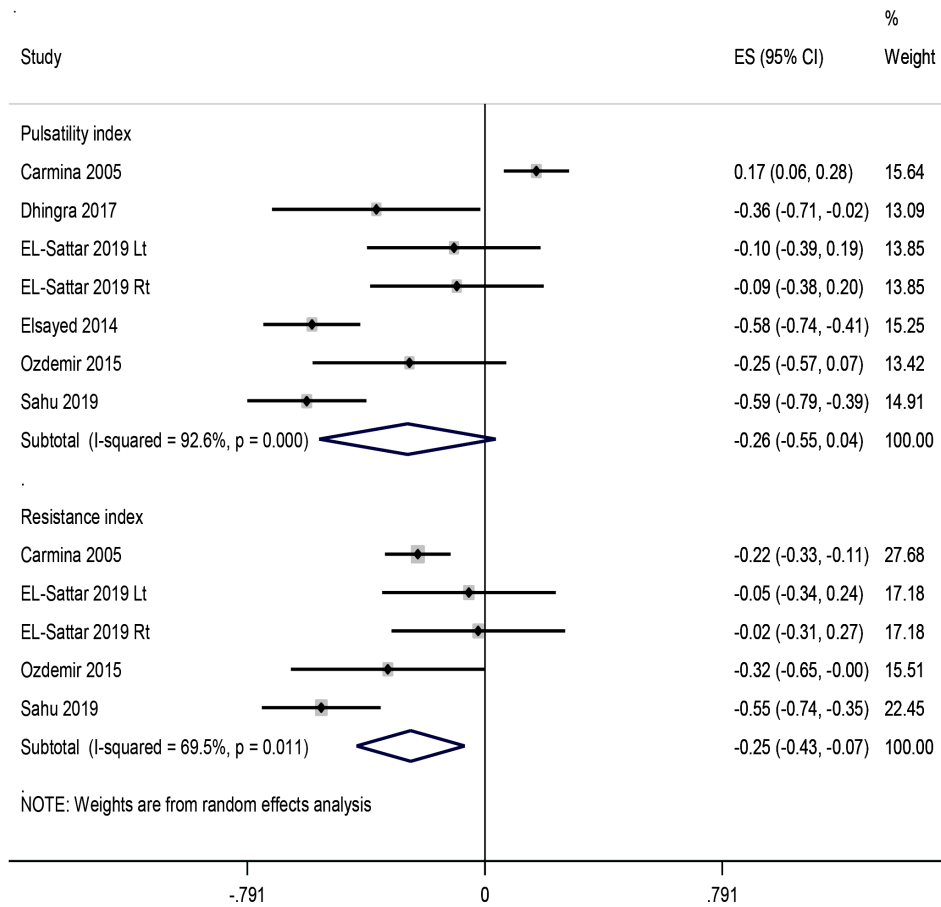


Figure S2 Forest graph showing the pooled z-scores of the correlations between LH and Doppler ultrasonography indices. ES, effect size (z-score); CI, confidence interval; Lt, left; Rt, right; LH, luteinizing hormone.

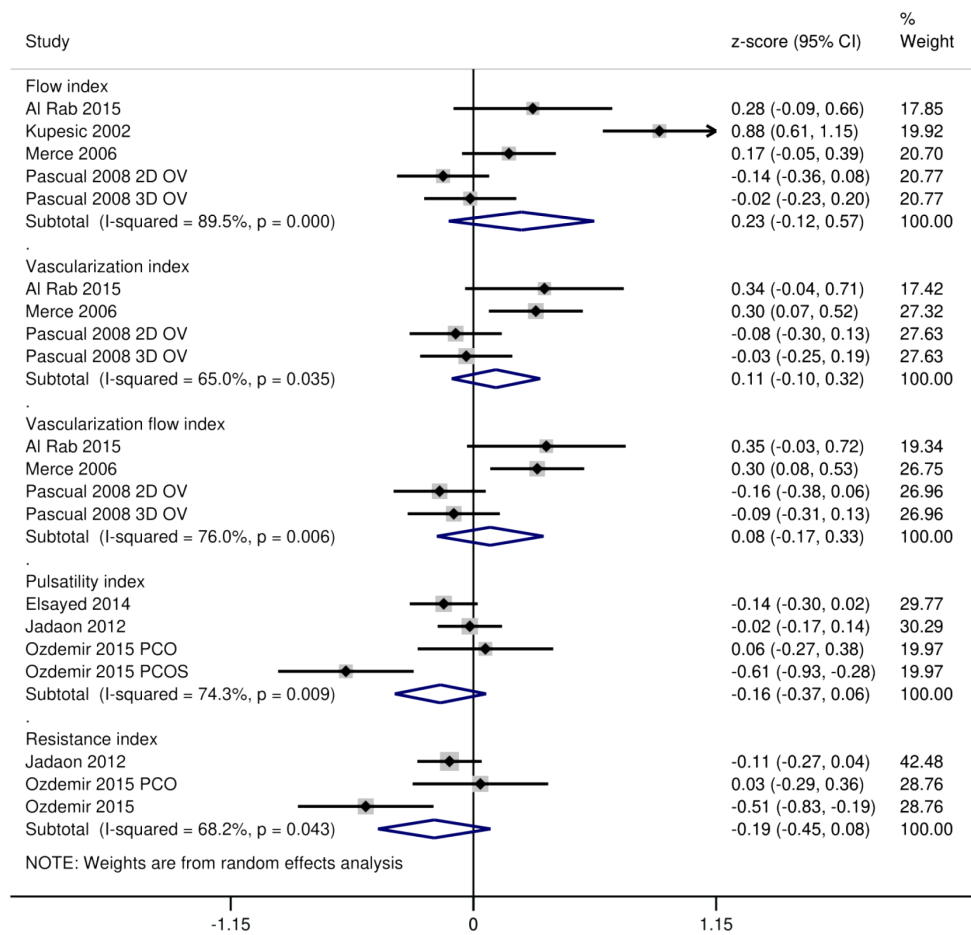


Figure S3 Forest graph showing the pooled z-scores of the correlations between ovarian volume and Doppler ultrasonography indices. CI, confidence interval; 2D, two-dimensional; OV, ovarian volume; 3D, three-dimensional; PCO, polycystic ovary; PCOS, polycystic ovarian syndrome.