

SUPPLEMENTAL MATERIAL

Table S1. Excluded studies and reasons for exclusion

Study ID	Comorbidities	n	Prevalence (AHI \geq 5)	Sensitivity (AHI \geq 5)	Specificity (AHI \geq 5)	Reasons for exclusion
Teng (2015)[20]	NR	NR	NR	NR	NR	Unable to retrieve full-text article after contacting corresponding author
Katzan (2016)[21]	Ischemic stroke	208	61% (AHI \geq 10)	94% (AHI \geq 10)	47% (AHI \geq 10)	Wrong OSA definition: did not use AHI/RDI cut-offs \geq 5, \geq 15, and \geq 30 events per hour
Parvankul (2016)[22]	Hypertension	124	NR	NR	NR	Wrong STOP-Bang cut-off
Donovan (2017)[23]	Diabetes mellitus	213	65%	NR	NR	Did not report predictive parameters
Sico (2017)[24]	Ischemic stroke	303	67%	Validation set: 82%	Validation set: 40%	Wrong STOP-Bang cut-off
Vicente-Herrero (2017)[25]	Obesity	NR	NR	NR	NR	Did not report predictive parameters
Vicente-Herrero (2018)[26]	Metabolic syndrome	1110	NR	NR	NR	Did not report predictive parameters
Zhang (2019)[27]	Acute ischemic stroke	124	69% (AHI \geq 10)	64% (AHI \geq 10)	67% (AHI \geq 10)	Wrong OSA definition: did not use AHI/RDI cut-offs \geq 5, \geq 15, and \geq 30 events per hour

Abbreviations: AHI, apnoea-hypopnea index; NR, not reported.

Figure S2. Summary receiver operating characteristic (SROC) curves for various OSA severities in patients with cardiovascular risk factors

(A) All OSA (AHI ≥ 5). **(B)** Moderate-to-Severe OSA (AHI ≥ 15). **(C)** Severe OSA (AHI ≥ 30). Abbreviations: AHI, Apnoea hypopnea index; AUC, area under the curve; OSA, obstructive sleep apnoea; SROC, summary receiver operating characteristic.

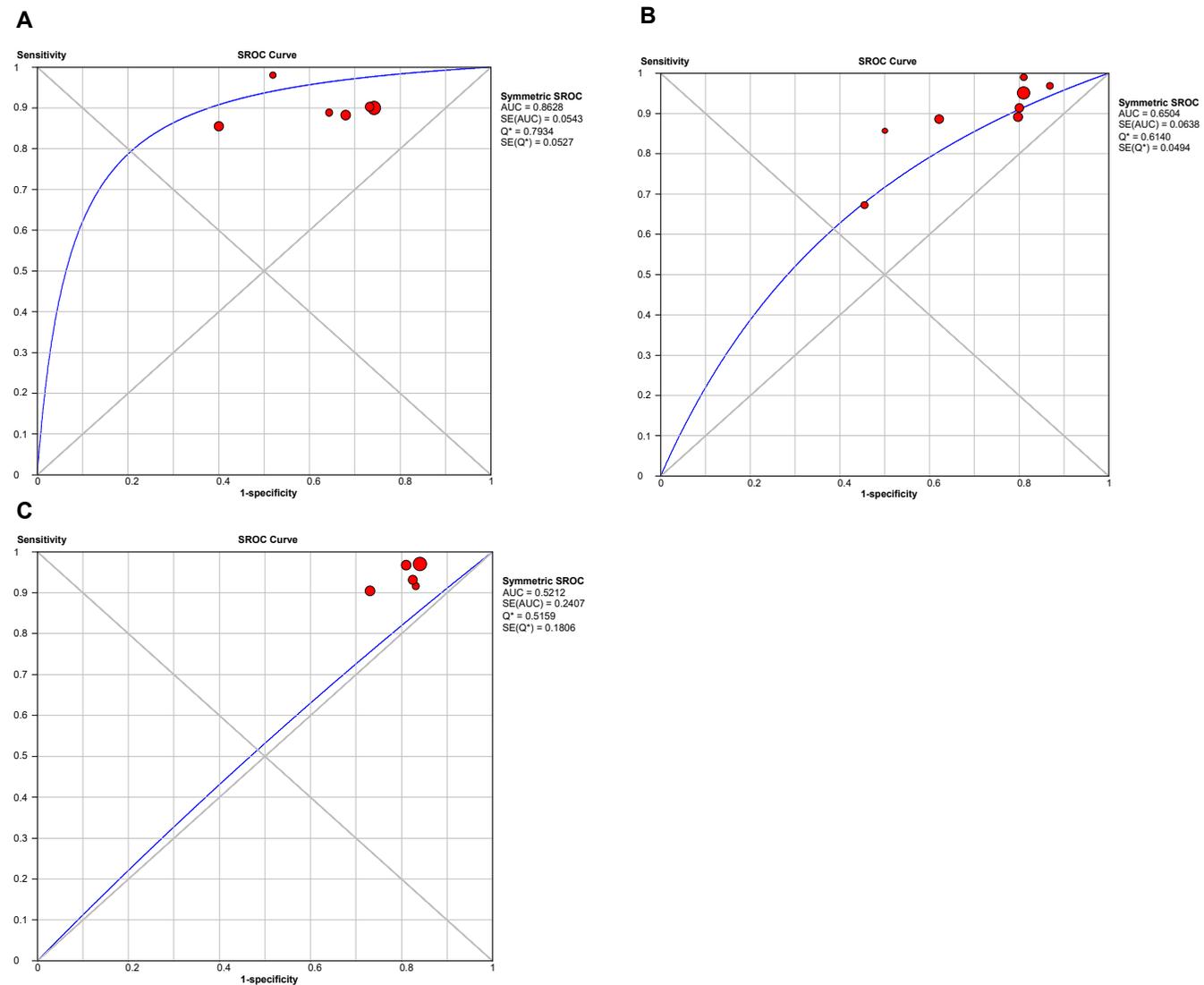


Table S3. Appraisal of the included studies based on criteria for internal validity

Internal Criteria	Valid reference standard	Definition of the disease based on reference standard	Blind execution of index test and reference test	Index test interpreted independently of clinical information	Study design
Definition	Laboratory PSG (PSG) or Home Sleep Apnoea Testing (HSAT)	OSA diagnosed based on the PSG results (Y/N)	PSG readings blinded to the questionnaire results and vice versa (Y/N)	The questionnaire interpreted independently of clinical information (Y/N)	Prospective or Retrospective
Petta (2015)[28] Italy	HSAT (Somnea, Compumedics)	Y	Unclear	Unclear	Prospective
Westlake (2016)[29] Czech Republic	HSAT (Apnoea Link)	Y	Unclear	Unclear	Prospective
Abumuamar (2018)[30] Canada	HSAT (Somté PSG)	Y	Y	Y	Prospective
Kee (2018)[31] Australia	HSAT (Apnoea Link)	Y	Y	Y	Prospective
Reuter (2018)[32] Germany	HSAT (Nox T3 Sleep Monitor)	Y	Unclear	Unclear	Prospective
Teng (2018)[33] China	Lab PSG	Y	Y	Y	Prospective
Zeng (2018)[34] China	Lab PSG	Y	N	N	Prospective
Chen (2019)[35] China	Lab PSG	Y	N	N	Retrospective
Felfeli (2020)[36] Canada	Lab PSG	Y	Y	Unclear	Prospective

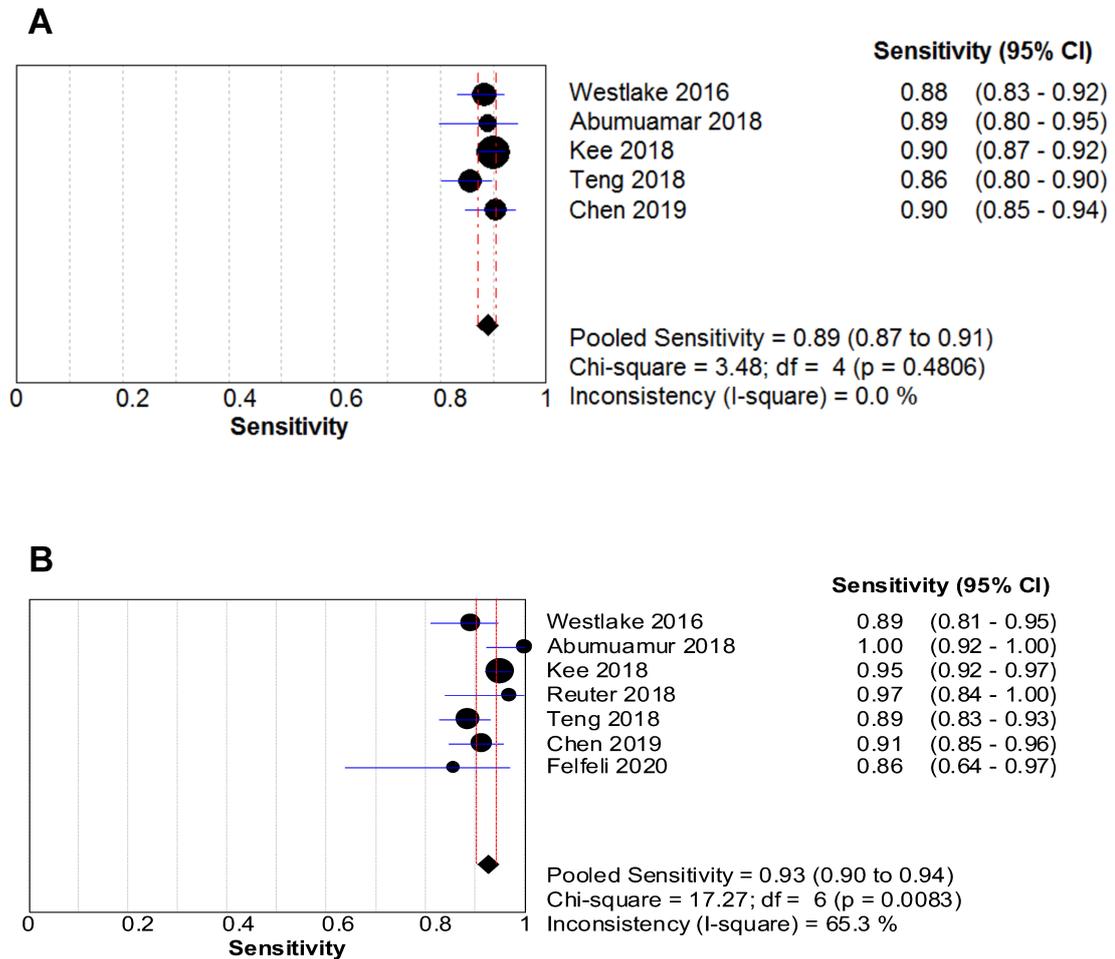
Abbreviations: HSAT, home sleep apnoea testing; Lab PSG, laboratory polysomnography.

Table S4. Appraisal of the included studies based on criteria for external validity

External Criteria	Spectrum of diseases	Setting	Previous screening	Demographic information	Explanation of cut-off point of index test	Percentage missing	Missing data management	Participant selection for reference test
Definition	Inclusion and exclusion criteria mentioned (Y/N)	Enough information to identify setting (Y/N)	No pre-screening before application of the questionnaire (Y/N)	Age, gender, BMI data provided (Y/N)	Results presented for AHI ≥ 5 or RDI ≥ 15 (Y/N)	Percentage missing mentioned (Y/N)	Analysis of missing data for basic characteristics (Y/N)	All participants were invited or randomly selected to do PSG (Y/N)
Petta (2015)[28] Italy	Y	Y	Y	Y	Y	Y	Y	Y
Westlake (2016)[29] Czech Republic	Y	Y	Y	Y	Y	Y	Y	Y
Abumuammar (2018)[30] Canada	Y	Y	Y	Y	Y	Y	N	Y
Kee (2018)[31] Australia	Y	Y	Y	Y	Y	Y	N	Y
Reuter (2018)[32] Germany	N	Y	Y	Y	Y	Y	N	Y
Teng (2018)[33] China	Y	Y	Y	Y	Y	Y	N	Y
Zeng (2018)[34] China	Y	Y	Y	Y	Y	N	N	Y
Chen (2019)[35] China	Y	Y	Y	Y	Y	N	N	Y
Felfeli (2020)[36] Canada	Y	Y	Y	Y	Y	Y	Y	Y

Abbreviations: AHI, apnoea-hypopnea index; BMI, body mass index; RDI, respiratory disturbance index; PSG, polysomnography.

Figure S5. Heterogeneity analysis of the sensitivity of the STOP-Bang questionnaire for OSA severities $AHI \geq 5$ and $AHI \geq 15$



(A) All OSA ($AHI \geq 5$). **(B)** Moderate-to-Severe OSA ($AHI \geq 15$). Abbreviations: AHI, Apnoea hypopnea index; df, degrees of freedom; OSA, obstructive sleep apnoea.

Table S6. Predictive parameters of various STOP-Bang cut-offs for different OSA severities in patients with cardiovascular risk factors

STOP-Bang Cut-offs	Number of Studies	Sample Size	Sensitivity	Specificity	Positive predictive value	Negative predictive value	Diagnostic Odds Ratio
All OSA							
≥ 3	6	1680	89	32	81	48	4.37
≥ 4	2	357	58	85	96	26	7.18
≥ 5	3	651	39	85	91	27	8.36
≥ 6	2	357	14	100	100	17	8.30
Moderate-to-Severe OSA							
≥ 3	8	1844	91	23	48	75	3.52
≥ 4	2	357	67	68	76	58	4.46
≥ 5	3	651	45	75	61	61	3.30
≥ 6	2	357	15	93	76	42	2.19
Severe OSA							
≥ 3	5	1630	94	18	22	93	3.72
≥ 4	2	357	76	59	45	85	4.66
≥ 5	3	651	56	72	35	86	4.57
≥ 6	2	357	21	93	56	73	3.53

Abbreviations: OSA, obstructive sleep apnoea.