



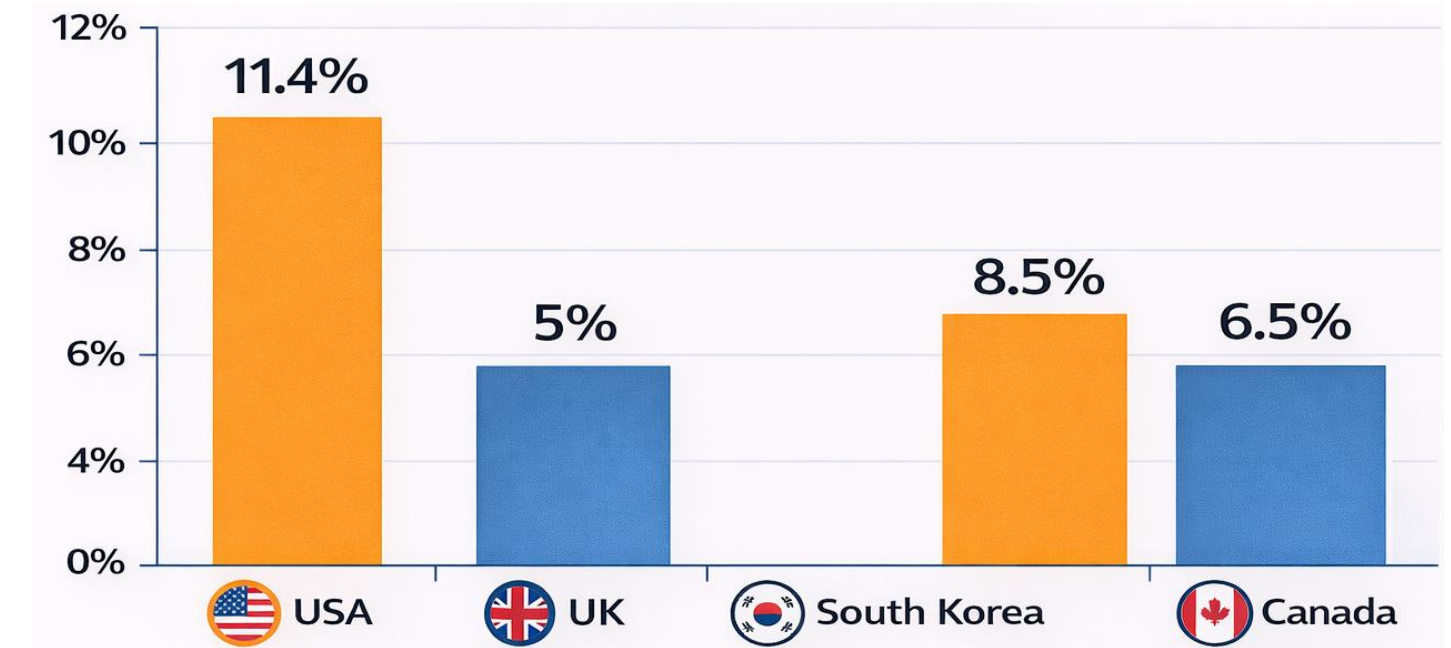
# Comparative Efficacy and Safety of East Asian Traditional Medicine for Children with Attention-Deficit/Hyperactivity Disorder: A Bayesian Network Meta-analysis



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## BACKGROUND

- Global children ADHD prevalence: ~ 8%
- ~30% remain untreated; Pharmacotherapy reports adverse events (AEs)
  - ✓ Appetite ↓, Growth ↓, Sleep disturbance
- East Asian traditional medicine (EATM) as a complementary option
  - ✓ Acupuncture (AT), Herbal medicine (HM)



## OBJECTIVE

- To compare the efficacy and safety of EATM and conventional ADHD treatments using Bayesian network meta-analysis (NMA)

## METHODS

- Data Sources**
  - 14 Databases (7 EN, 3 KR, 3 CN, 1 JP; ~ Feb 2025)
- Eligibility Criteria**
  - RCTs (n ≥30), < 18y ADHD patients
  - EATM ± Western medicine (WM) or psychological interventions ( ≤ 2 combinations)

### Outcomes

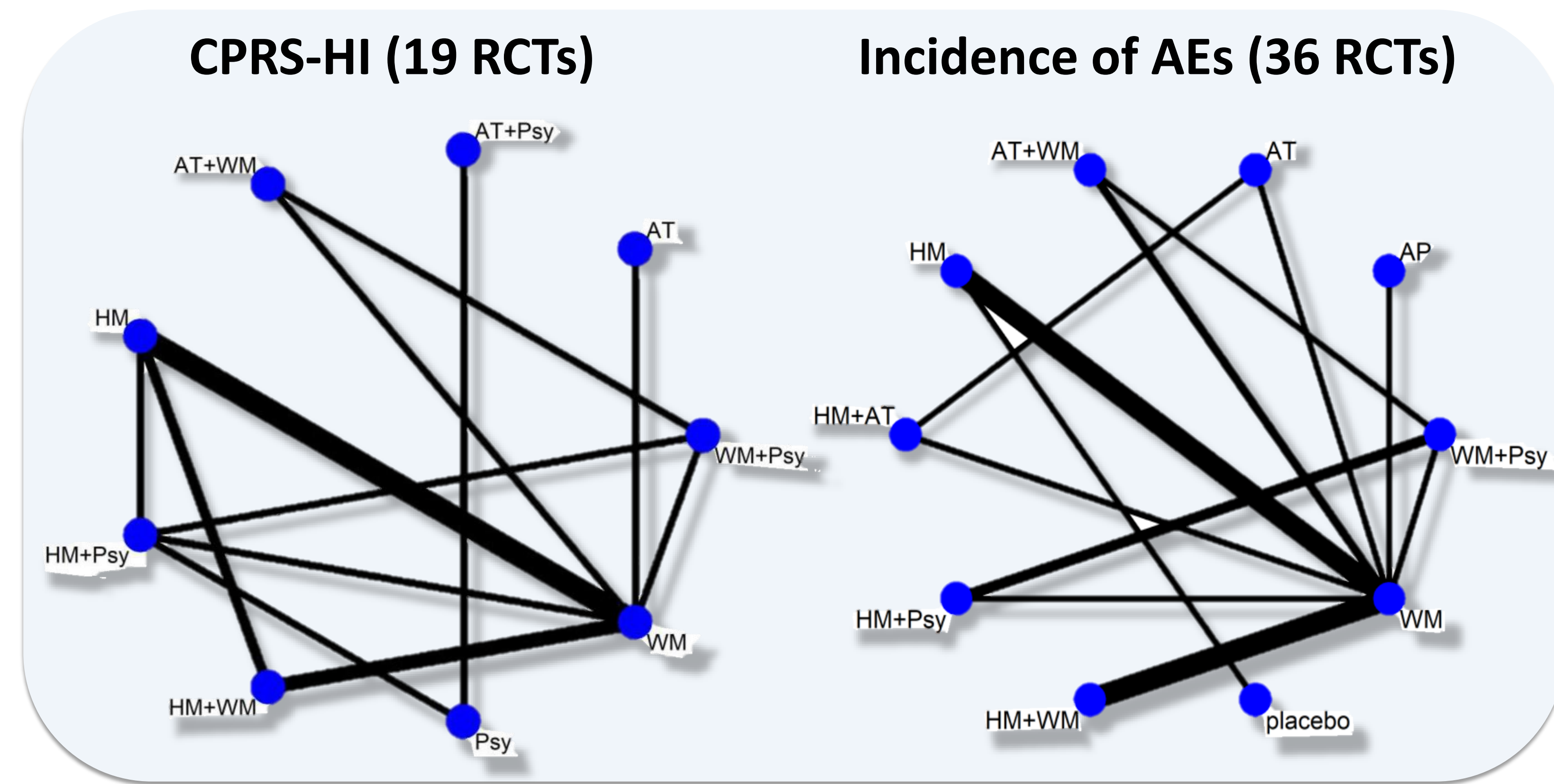
- Conners' Parent Rating Scale-Hyperactivity Index (CPRS-HI) (Primary)
- SNAP-IV, Total effective rate (TER; ≥30% improvement in SNAP-IV or CPRS), CPRS-48, ASQ, incidence of AEs

### Statistical Analysis

- Pairwise MA & Bayesian NMA (MCMC, 4 chains, 10k burn-in, 50k iterations, thin 100)

## RESULTS

### I. Network plot



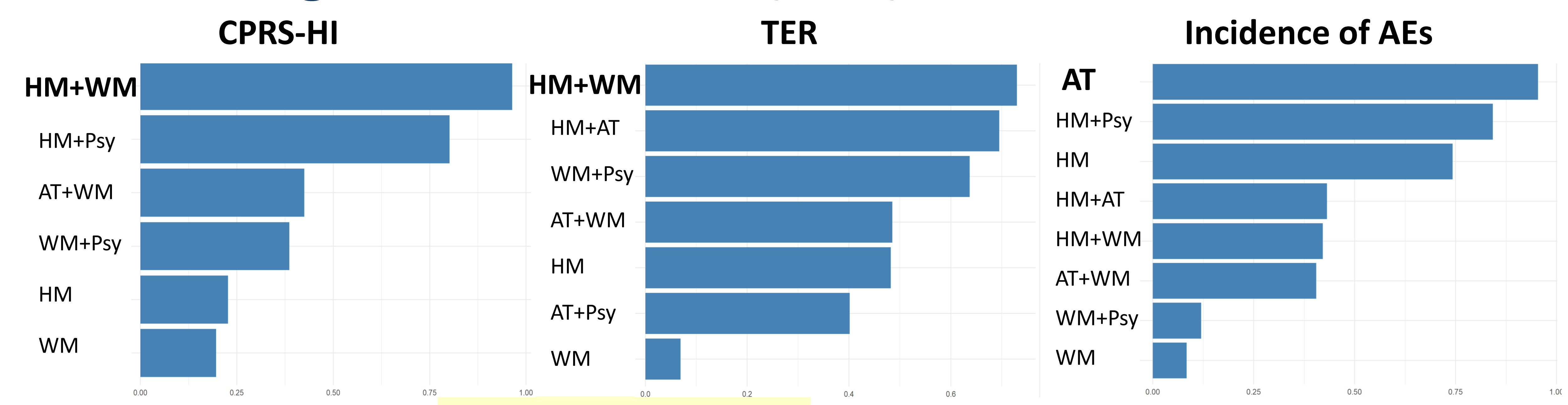
- Across **73 RCTs (n = 6,829)**
- AT: Needle-based acupuncture (with or without stimulation); AP: Acupressure
- Psy: Psychological interventions (e.g., CBT, psychotherapy, neurofeedback)

### II. League table (CPRS-HI)

AT+Psy (91%)	-	-	-	-5.20 (-5.61, -4.79)	-	-	-	-
-1.58 (-7.71, 4.04)	HM+WM (84%)	-	-	-	-6.69 (-8.07, -5.30)	-4.61 (-6.91, -2.32)	-	-
-2.42 (-9.28, 4.05)	-0.78 (-5.14, 3.24)	AT (73%)	-	-	-	-	-4.50 (-7.26, -1.74)	-
-3.21 (-8.43, 1.57)	-1.67 (-4.82, 1.54)	-0.83 (-5.39, 3.75)	HM+Psy (67%)	1.90 (-2.85, -0.95)	3.80 (-4.72, -2.88)	-1.94 (-3.11, -0.77)	-5.00 (-10.47, 0.47)	-
-5.19 (-8.80, -1.87)	-3.65 (-8.11, 1.07)	-2.79 (-8.71, 3.03)	-2.00 (-5.39, 1.58)	Psy (39%)	-	-	-	-
-5.81 (-12.12, 0.40)	-4.27 (-7.99, -0.46)	-3.51 (-8.69, 1.77)	-2.66 (-6.34, 1.23)	-0.64 (-6.11, 4.62)	AT+WM (32%)	0.35 (-0.91, 1.61)	-1.55 (-3.70, 0.60)	-
-6.05 (-11.95, -0.44)	-4.50 (-7.92, -0.99)	-3.70 (-8.55, 1.15)	-2.83 (-5.76, 0.01)	-0.92 (-5.35, 3.51)	-0.21 (-3.67, 3.35)	WM+Psy (29%)	-1.90 (-4.05, 0.25)	-
-6.72 (-12.28, -1.19)	-5.16 (-7.10, -3.29)	-4.38 (-8.18, -0.46)	-3.48 (-6.17, -1.01)	-1.52 (-5.99, 2.90)	-0.88 (-4.50, 2.61)	-0.63 (-3.78, 2.26)	HM (19%)	-0.07 (-1.41, 1.28)
-6.83 (-12.45, -1.31)	-5.27 (-7.14, -3.53)	-4.54 (-8.15, -0.73)	-3.63 (-6.22, -1.04)	-1.69 (-6.18, 2.70)	-0.98 (-4.55, 2.44)	-0.76 (-3.74, 2.16)	-0.10 (-1.33, 1.06)	WM (15%)

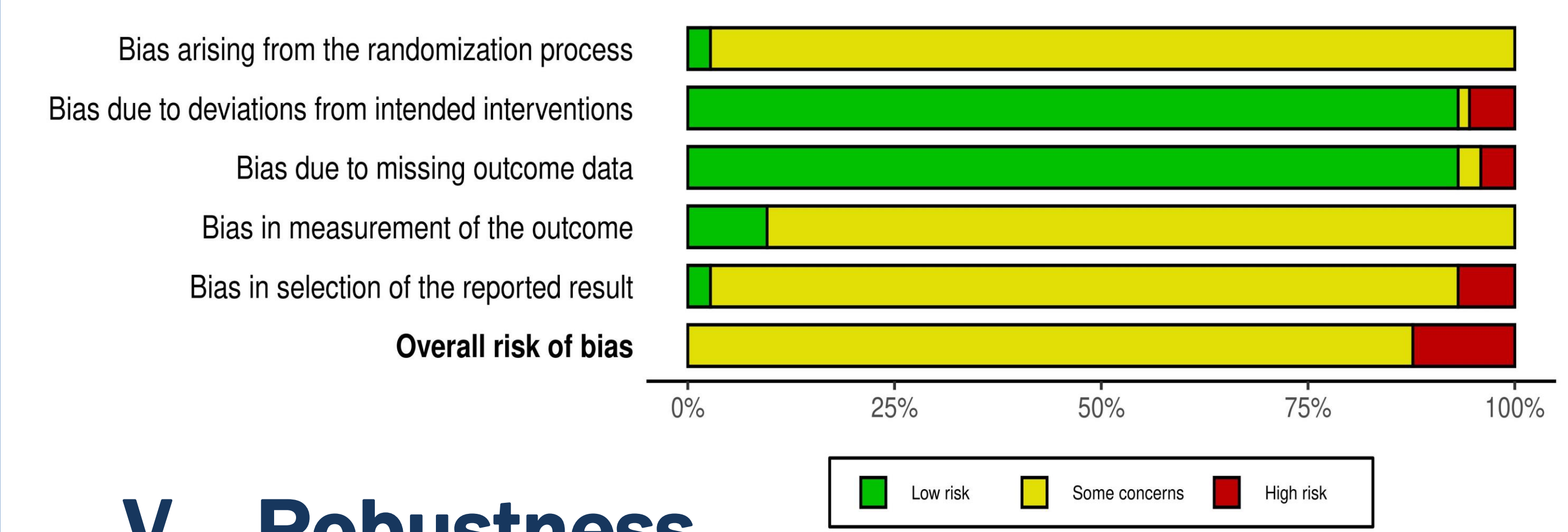
- Upper Δ: pairwise MA (row vs column); Lower Δ: Bayesian NMA (column vs row)
- Values: mean differences (MD) with 95% CI/CrI; Percentages: SUCRA probabilities
- ✓ Yellow: Statistically significant; Orange: Largest effect (significant only)

### III. Ranking (SUCRA after sensitivity analysis)



- ✓ For CPRS-HI & TER, **HM+WM ranked highest** after excluding single-study interventions
- ✓ For safety, **AT showed the best profile** (AT > HM-containing > WM-containing)

## IV. Risk of bias (RoB 2)



## V. Robustness

- CPRS-HI**
  - No publication bias was found
  - No evidence of global or local inconsistency
- Incidence of AEs**
  - Certainty of evidence (CINeMA)**
    - ✓ CPRS-HI: Moderate
    - ✓ TER/incidence of AEs: Low

## VI. Frequently used acupoints

Acupuncture point	Number of studies (%)
Baihui (GV20)	16 (76.2)
Sishencong (EX-HN1)	11 (52.4)
Neiguan (PC6)	10 (47.6)
Shenmen (HT7)	10 (47.6)
Sanyinjiao (SP6)	9 (42.9)
Taichong (LR3)	8 (38.1)
Taixi (KI3)	6 (28.6)
Yintang (EX-HN3)	6 (28.6)

## CONCLUSION

- HM+WM** showed the **highest efficacy (SUCRA CPRS-HI 0.96; TER 0.73)**
- Acupuncture monotherapy** had the best safety (lowest AEs; SUCRA 0.95)
- EATM may be a clinically meaningful option for children with ADHD