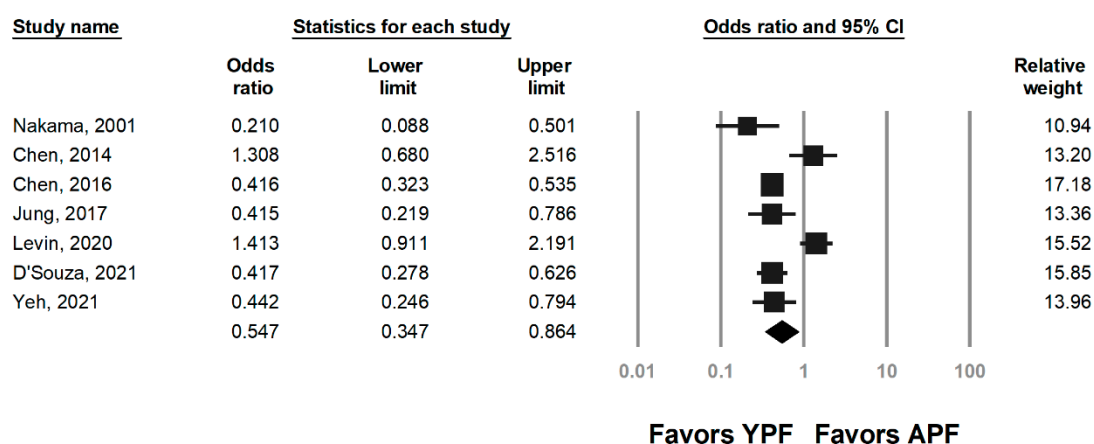
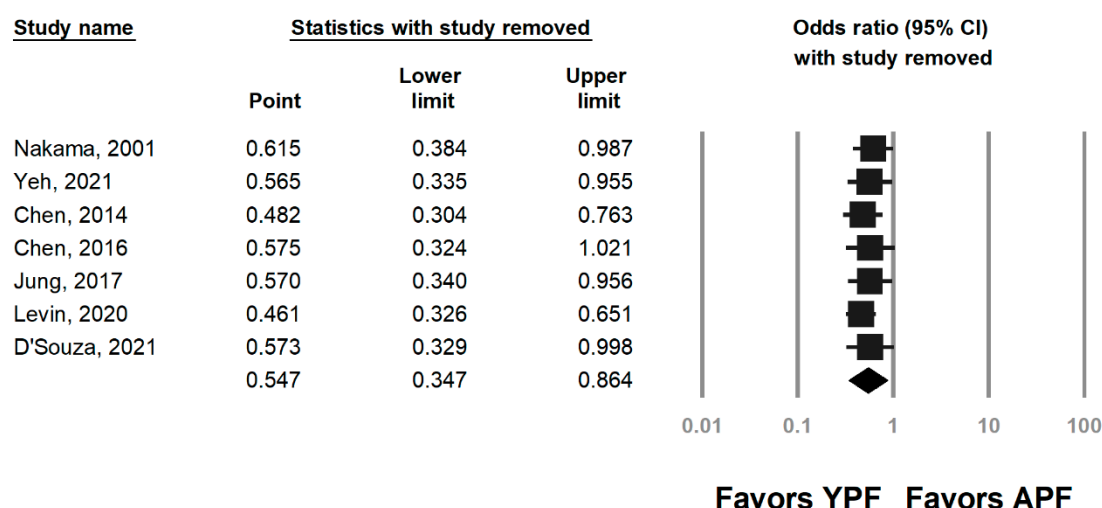


# Performance of the Fecal Immunochemical Test in Detecting Advanced Colorectal Neoplasms and Colorectal Cancers in People Aged 40–49 Years: A Systematic Review and Meta-Analysis

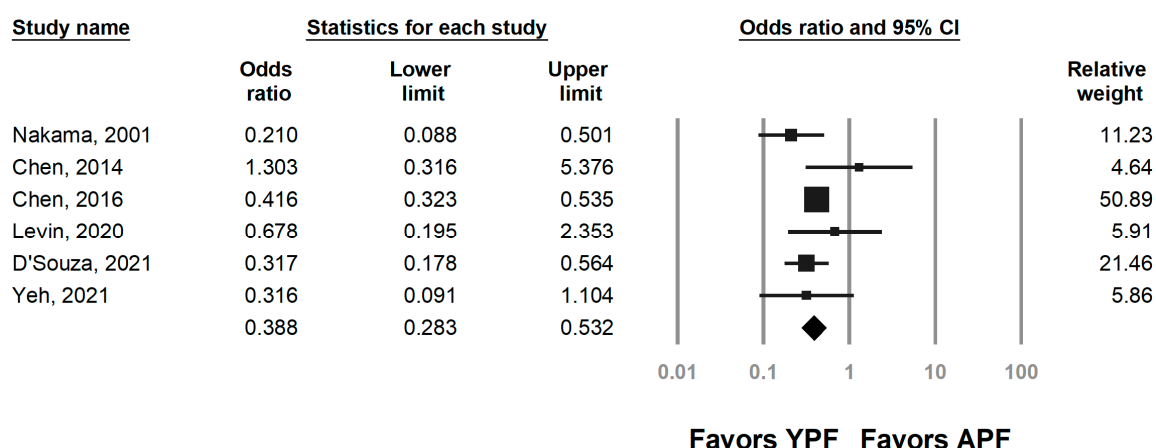
Jen-Hao Yeh , Cheng-Hao Tseng, Wen-Lun Wang, Chih-I Chen, Yu-Peng Liu, Yi-Chia Lee, Jaw-Yuan Wang and Yu-Ching Lin



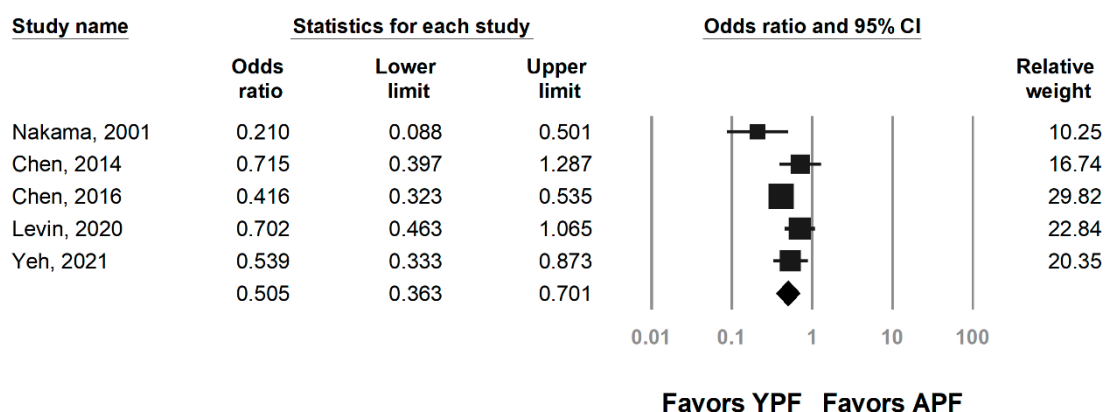
**Supplementary Figure S1.** Pooled OR of ACRN of younger individuals with positive fecal immuno-chemical test (FIT) results (YPF) versus that of average risk individuals with positive FIT results (APF). Heterogeneity:  $I^2 = 83.6\%$ ,  $\tau^2 = 0.298$ ,  $P < 0.001$ .



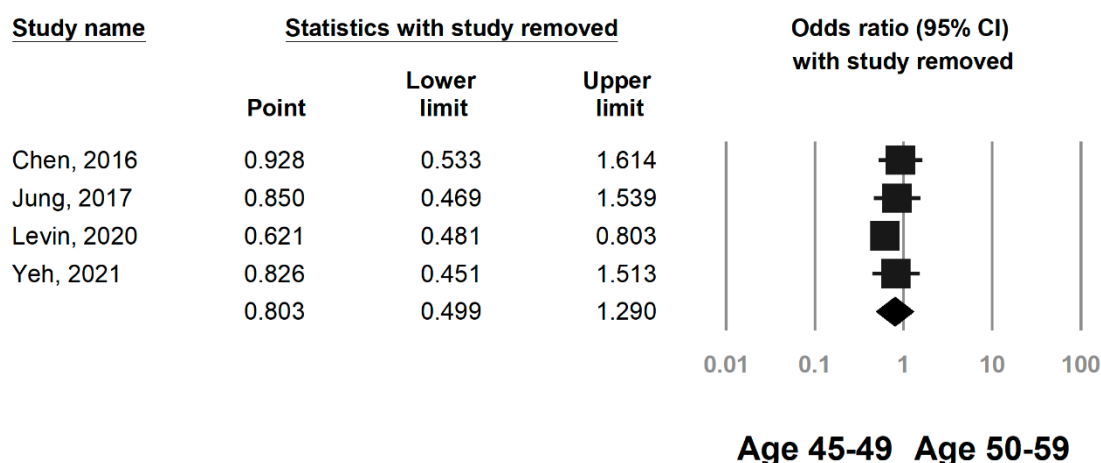
**Supplementary Figure S2.** Sensitivity analysis of pooled OR of ACRN of younger individuals with positive FIT results (YPF) versus that of average-risk individuals with positive FIT results (APF). The statistics reflected the effect estimates when the given study was excluded.



**Supplementary Figure S3.** Pooled OR of CRC of younger individuals with positive FIT results (YPF) versus that of average risk individuals with positive FIT results (ARF). Heterogeneity:  $I^2 = 20.8\%$ ,  $\tau^2 = 0.034$ ,  $P = 0.276$ .



**Supplementary Figure S4.** Pooled OR of colorectal neoplasia (CRN) of younger individuals with positive FIT results (YPF) versus that of average risk individuals with positive FIT results (ARF). Heterogeneity:  $I^2 = 59.5\%$ ,  $\tau^2 = 0.078$ ,  $P = 0.042$ .



**Supplementary Figure S5.** Sensitivity analysis of pooled OR of ACRN of individuals with positive fecal immunochemical test results aged 45–49 versus 50–59 years. The statistics reflected the effect estimates when the given study was excluded.

**Supplementary Table S1.** Risk of bias assessment by Newcastle–Ottawa Scale for included studies.

Study	Selection				Comparability	Outcome/Exposure			Score
	1	2	3	4	1	1	2	3	
Nakama, 2001	*	*	*	*	*	*	*	*	8
Morikawa, 2007	*	*	*	*	*	*	*	*	8
Chen YY, 2014	*	*	*	*	*	*	*	*	8
Symonds, 2015	*	*	*	*	*	*	*	*	8
Chen CH, 2016	*	*	*	*	*	*	*	*	8
Jung, 2017	*	*	*	*	*	*	*	*	8
Levin, 2020	*	*	*	*	*	*	*	*	8
D'Souza, 2021	*	*	*	*	*	*	*	*	8
Pin-Vieito, 2021	*	*	*	*	*	*	*	*	8
Yeh, 2021	*	*	*	*	*	*	*	*	8

**Supplementary Table S2.** Sensitivity, specificity, and positive and negative predictive value of ad-advanced colorectal neoplasia (ACRN) by cutoff of fecal immunochemical test in each age group.

Study	Sensitivity by age (%)		Specificity by age (%)		Positive predictive value by age (%)		Negative predictive value by age (%)	
	40-49	≥ 50	40-49	≥ 50	40-49	≥ 50	40-49	≥ 50
Morikawa, 2007	25.3	22.9	NA	NA	NA	NA	NA	NA
Chen, 2014	32.1	19.2	96.4 (overall)		28.1	23	96.6 (overall)	
Jung, 2017	15.7	23.5	97.2	96.6	10	21.3	98.3	97
D'Souza,† 2021	64.4	65.4	84.7	84.9	15.2	27.6	98.2	96.5
Yeh, 2021	18.9	25.9	95	93.7	14.5	30.9	96.3	92.0

NA: not available; †: younger age group people aged < 40 were also included

**Supplementary Table S3.** Sensitivity, specificity, and positive and negative predictive value of colo-rectal cancer (CRC) by cutoff of fecal immunochemical test in each age group.

Study	Sensitivity by age (%)		Specificity by age (%)		Positive predictive value by age (%)		Negative predictive value by age (%)	
	40-49	≥ 50	40-49	≥ 50	40-49	≥ 50	40-49	≥ 50
D'Souza,† 2021	81.3	91.4	83.6	83.5	6.8	17.1	99.5	99.6
Pin-Vieito, 2021	89.7	88.5	91.8	88.7	3.4	9.8	99.9	99.8
Yeh,‡ 2021	60	80.9	94.2	92.3	2.7	8.2	99.8	99.8

†: Using 10 ug/g as fecal immunochemical test cutoff in opposed to other studies which using 20 ug/g; ‡: only included younger age people aged 40-49.