

Appendix 4: Quality assessment scores for individual studies using Hoy et al tool.

Study	External validity				Internal validity						Summary item on the overall risk of study bias
	1	2	3	4	5	6	7	8	9	10	
Aabakke AJM 2021	LOW	LOW	LOW	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW
Agarwal N, 2021	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Agius A 2022	LOW	LOW	LOW	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW
Ahmad Z 2022	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Akbar MIA 2021	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Akbarian-Rad Z 2021	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Al-Matary A 2021	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Al-Qassem AK 2022	LOW	LOW	LOW	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW
Álvarez Bartolomé A 2022	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Amorita NA 2021	HIGH	LOW	LOW	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW
Ansari A (1) 2020	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Antolin EM 2021	LOW	LOW	LOW	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW
Antsaklis P 2021	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Arakaki T 2021	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Artymuk N 2021	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Aziz-Ahari S 2021	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Babic I, 2022	HIGH	LOW	LOW	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW
Bachani S 2020	HIGH	LOW	LOW	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW
BahaaEldin H 2021	LOW	LOW	LOW	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW
Belokrinitskaya TE 2022	LOW	LOW	LOW	LOW	HIGH	LOW	LOW	HIGH	LOW	LOW	LOW

Benlghazi A 2021	HIGH	LOW	LOW	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW
Bhomia C 2022	HIGH	LOW	LOW	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW
Bircher C 2022	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Borges Charepe N 2022	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Budhram S 2021	LOW	LOW	LOW	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW
Carranza Lira S (1) 2022	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Chaichian S 2021	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Chapuma CIJ 2022	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Chigateri S, 2022	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Choudary A 2022	HIGH	LOW	LOW	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW
Chung Y 2021	LOW	LOW	LOW	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW
Clemente MJQ 2021	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Datta S 2021	HIGH	LOW	LOW	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW
Dave A 2021	HIGH	LOW	LOW	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW
Dingom MAN 2020	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Doke G, 2022	HIGH	LOW	LOW	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW
Dollinger S, 2022	HIGH	LOW	LOW	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW
Donati S 2021	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Elsmore A 2022	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Engjom HM 2022	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Estrada-Chiroque LM 2022	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Fakhar S 2021	HIGH	LOW	LOW	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW
Flannery DD 2022	HIGH	LOW	LOW	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW
Gargari S, 2022	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Ghosh M, 2022	HIGH	LOW	LOW	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW
Gomez UT 2022	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Goyal LD 2022	LOW	LOW	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW

Grados IZ 2021	HIGH	LOW	LOW	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW
Gupta P 2021	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	HIGH	LOW	LOW	LOW
Hall M 2022	HIGH	LOW	LOW	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW
Hazari K 2020	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Hodzic J 2021	HIGH	LOW	LOW	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW
Hojo-Souza 2022	LOW	LOW	LOW	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW
Hossain I 2020	HIGH	LOW	LOW	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW
Hosseini MS 2021	LOW	LOW	LOW	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW
Ibrahim AA, 2022	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Ioscovich A 2021	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Jain PG 2022	HIGH	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Joshi SD 2020	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Kamali A 2021	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Kaur P 2021	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Kayem G 2020	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Khan N 2021	LOW	LOW	LOW	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW
Khoiwal K 2021	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Khoiwal K 2022	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Kumari A 2022	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Leung C (1) 2022	LOW	LOW	LOW	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW
Li Q 2021	LOW	LOW	LOW	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW
Lucovnik M 2021	HIGH	LOW	LOW	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW
Mahajan NN (1) 2022	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Mahajan NN (5) 2021	HIGH	LOW	LOW	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW
Mahato RD 2022	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Manasova G 2021	HIGH	LOW	LOW	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW
Maraqa B 2021	LOW	LOW	LOW	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW

Marwah M, 2022	HIGH	LOW	LOW	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW
Mattar CNZ 2020	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Maukayeva S 2022	HIGH	LOW	LOW	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW
McCreary EK, 2022	LOW	LOW	LOW	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW
Mercedes BR 2020	HIGH	LOW	LOW	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW
Mitra S 2022	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Mohaghegh Z 2021	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Mohini 2022	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Morales NM 2020	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Mrazguia C 2021	HIGH	LOW	LOW	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW
Najafian M 2021	HIGH	LOW	LOW	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW
Najam R, 2022	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Nandi N 2021	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Naveen Chandra S 2022	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Nayak M 2021	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
NethOSS 22nd January 2021 update	LOW	LOW	LOW	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW
Omrani AS 2020	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Ozsurmeli M 2021	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Paudyal P 2022	HIGH	LOW	LOW	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW
Pecks U 2020	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Peepal P 2022	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Peter B (1), 2022	LOW	LOW	LOW	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW
Pineles BL 2022	LOW	LOW	LOW	LOW	HIGH	LOW	LOW	HIGH	LOW	LOW	LOW
Rahmadhini DA 2022	LOW	LOW	LOW	LOW	LOW	LOW	LOW	HIGH	LOW	LOW	LOW
Remaeus K 2020	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Rottenstreich A 2020	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Rozo N 2021	LOW	LOW	LOW	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW

Saadia Z 2021	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Sadiq H 2021	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Sahin D 2021	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Sahin D, 2022	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Saimin J 2021	HIGH	LOW	LOW	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW
Salvatore MA 2022	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Samadi P 2021	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Santhosh J 2020	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Sarmadi S, 2022	HIGH	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Sayeed SK 2021	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Shah PT 2020	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Shams T 2022	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Sharief M 2021	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Sharma R, 2022	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Sharma R, 2022	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Shoji K 2022	LOW	LOW	LOW	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW
Shree P 2022	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Sibia P 2021	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Siddiqui S (1) 2021	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Singh V (1) 2021	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Singh V 2022	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Subedi K 2022	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Suurnach-Ayats B 2022	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Sundar A 2022	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Szczygiol P 2022	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Tekin AB (2)	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Thiabaud A 2020	LOW	LOW	LOW	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW

Timur B 2022	HIGH	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Tiwari L 2021	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Trahan MJ (3) 2021	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
USA CDC surveillance (25 December 21)	LOW	LOW	LOW	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW
Villar J 2021	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Vousden N (1) 2022	LOW	LOW	LOW	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW
Vural T 2022	LOW	LOW	LOW	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW
Yadav V 2020	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Zaharie G 2020	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Añez MPC 2022	HIGH	HIGH	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	HIGH	MODERATE
Asalkar MR 2022	HIGH	HIGH	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	HIGH	MODERATE
Baloch PG 2022	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Brendolin N 2022	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	HIGH	LOW
Cambou M 2022	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	HIGH	LOW
Carrion Nessi FS 2022	LOW	HIGH	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	HIGH	LOW
Cunha CMP 2022	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	HIGH	LOW
Decenti EC 2022	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	HIGH	LOW
Denizli R 2022	HIGH	HIGH	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	HIGH	MODERATE
Emekar SM 2022	HIGH	HIGH	HIGH	LOW	HIGH	LOW	LOW	LOW	LOW	HIGH	MODERATE
Favre G (1) 2022	LOW	HIGH	HIGH	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Ferreira et al 2022	LOW	HIGH	HIGH	HIGH	HIGH	LOW	LOW	LOW	LOW	HIGH	MODERATE
Filho MCB 2022	LOW	HIGH	HIGH	LOW	HIGH	LOW	LOW	LOW	LOW	HIGH	MODERATE
Furrukh R 2021	LOW	HIGH	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Goldenberg RL 2022	LOW	LOW	HIGH	LOW	HIGH	LOW	LOW	LOW	LOW	HIGH	LOW
Goyal R 2022	HIGH	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Grgic G 2022	LOW	LOW	LOW	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW

Guleroglu FY 2022	HIGH	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Hamidi OP 2022	LOW	HIGH	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Jarraya A 2022	LOW	HIGH	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	HIGH	LOW
Kilic O 2022	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Kinci OS 2022	HIGH	HIGH	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Kusuma AANJ 2022	HIGH	HIGH	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	HIGH	MODERATE
Leung C (2) 2022	LOW	HIGH	LOW	LOW	HIGH	LOW	LOW	LOW	LOW	HIGH	LOW
Mishra S 2022	HIGH	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	HIGH	LOW
Nunes MC 2022	LOW	HIGH	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Qudsieh S 2022	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Secara DC 2022	HIGH	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	HIGH	LOW
Sero L 2022	HIGH	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	HIGH	LOW
Shirazi M 2022	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	HIGH	LOW
Sobkowski M 2022	HIGH	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Wadhwani R 2022	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW