Supplementary material

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Table S1 STROBE checklist of quality items of the included studies.

Item	No	Recommendation	yes	no	unclear
Title and abstract	1	(*a*) Indicate the study's design with a commonly used term in the title or the abstract	6,9,18,19,26, 31,35,37,39, 40-41,44, 51-53, 55,57-59,61,68,70, 72	7,17,20,29,33, 34,36,38,42, 46-50,54,56,60, 62-67,69,71	NA
		(*b*) Provide in the abstract an informative and balanced summary of what was done and what was found	6,7,9,17-20,26,29,31, 33-42, 44,46-59, 61-65,67-70,72	60,66,71	NA
Introduction					
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	6,7,9,17-20,26,29,31, 33-42,44,46-72	NA	NA
Objectives	3	State specific objectives, including any prespecified hypotheses	6,7,9,17-20,26,29,31, 33,35-37,39-42,44,46-72	34,38	NA
Methods					
Study design	4	Present key elements of study design early in the paper	6,7,9,17-20,26,29,31, 33-42, 44,46-72	NA	NA

Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	6,7,9,17-20,26,31,33-42, 44,46-52, 54-59, 60, 62-64, 66, 68-70	29, 53, 61, 65, 67, 71, 72	NA
Participants	6	(*a*) Give the eligibility criteria, and the sources and methods of selection of participants	6,7,9,17-20,26,29,31, 33-42, 44,46-72	NA	NA
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	6,7,9,17-20,26,29,31, 33-42, 44,46-72	NA	NA
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	NA	NA	NA
Bias	9	Describe any efforts to address potential sources of bias	6,7,9,17-18,26,39,41, 44,46-50,52, 55-59,61,62,68, 72	31,33,34,51, 53,54,63-65,69-71	19,20,29,35-38,40,42,60, 66,67
Study size	10	Explain how the study size was arrived at	NA	NA	6,7,9,17-20,26,29,31, 33-42,

					44,46-72
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	6,7,9,17-19,26,29,31, 33-42, 44,46-68,72	71	20,69,70
Statistical methods	12	(*a*) Describe all statistical methods, including those used to control for confounding	6,7,9,17-19 26,29,31, 33-37,39,40,44, 46-52-59,61-65,68-70,72	20,38,71	60,66,67
		(*b*) Describe any methods used to examine subgroups and interactions	6,7,17, 18, 19, 26,29, 33-37,39,40-41,44, 46-50,52-59,60-62,65-66,72	20,31,38,51, 63,64,67-71	NA
		(*c*) Explain how missing data were addressed	6,18,20, 26,29,36,39, 44,52,55-58,61-62,72	7,9,31,33,34, 38,51,53-54,59,60,63, 64,66-71	17,19,35,37, 40-42,46-50,65
		(*d*) If applicable, describe analytical methods taking account of sampling strategy	NA	NA	NA
		(*e*) Describe any sensitivity analyses	6,9,17-19,26, 33, 35-37,39, 40,44, 46-49, 52-59,61-62,72	7,20,31,38,60, 63,64,66-71	29,34,41-42,50,51,65
Results					
Participants	13*	(a) Report numbers of	6,7,9,17-	NA	NA

		individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	20,26,29,31, 33-42, 44,46-72		
		(b) Give reasons for non-participation at each stage	18,20,26, 36, 40,46-49,52,55,57, 61-62,72	38,60,63,66	6,7,9,17,19,29, 31,33-35, 37, 39-42,44,50,51, 53,54,56,58, 59,64,65,67-71
		(c) Consider use of a flow diagram	17-19,33,34, 40-42,52,55,57, 64-65,72	6,7,9,20,26,31,35-39,44,46-51,53,54,56, 58-63,66-71	NA
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	6,7,9,17-20,26,29,31, 33-42, 44,46-59, 61-62,64-65,67-72	NA	60,63,66
		(b) Indicate number of participants with missing data for each variable of interest	18,26,36,44, 52, 55,57,58,62, 72	7,9,20,29,31, 33,34,35,37, 38,53,54,59, 60,65-71	6,17,19,36,39-42,46-51,56, 61,63,64
Outcome data	15*	Report numbers of outcome events or summary measures	6,7,9,17-20,26,29,31, 33-42,	NA	NA

			44,46-72		
Main results	16	(*a*) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	6,7,9,17-19,26,29,33-37,39-42, 44,46-63,65-67,72	20,31,38,64, 68-71	NA
		(*b*) Report category boundaries when continuous variables were categorized	6,7,9,17-20,26,29,31, 33-42, 44,46-72	NA	NA
		(*c*) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	NA	NA	NA
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	6,9,17-19,26, 29,33-37,39,44, 46-50, 52-59, 61-62,72	7,20,31,38,40-42,51, 60,63,64,66-71	NA
Discussion					
Key results	18	Summarise key results with reference to study objectives	6,7,9,17-20,26,29,31, 33-42, 44,46-72	NA	NA
Limitations	19	Discuss limitations of the study, taking into account	6,7,9,17-20,26,29,33-	31,67	NA

		sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	42,44,46-66,68-72		
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	6,7,9,17-20,26,29,31, 33-42, 44,46-72	NA	NA
Generalisability	21	Discuss the generalisability (external validity) of the study results	6,7,9,17-20,26,29,31, 33-42, 44,46-72	NA	NA
Other information					
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	6,9,18,19,26, 29,37,38,39, 41,42,44,46-49,53-59,61-65,67-69,72	7,17,20,31, 33-36,40,50-52,60,66,70, 71	NA

Note: *Give information separately for exposed and unexposed groups. Studies are presented with references order of the manuscript. NA: not applicable.

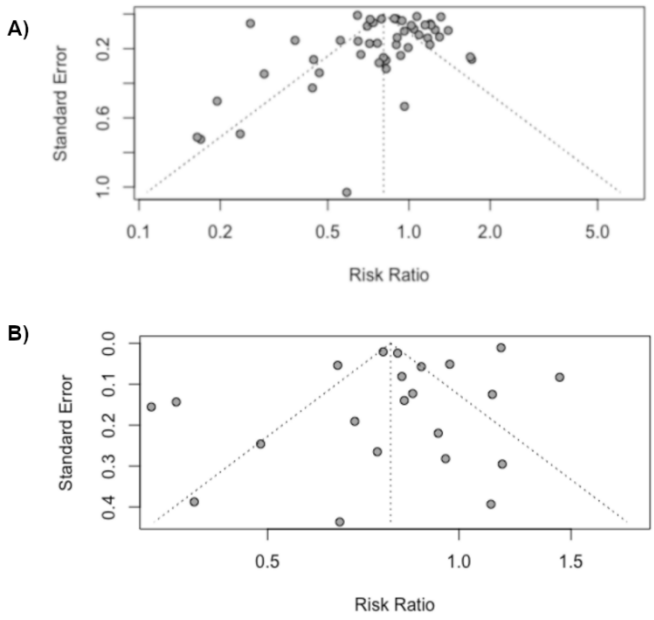

Figure S1. Funnel plots for the analysis of the secondary attack rate (SAR) A) Funnel plots for the analysis of the SAR among children and adult contacts in household SARS-CoV-2 transmission; B) Funnel plots for the SAR of household members when an adult or a child was identified as the index case.

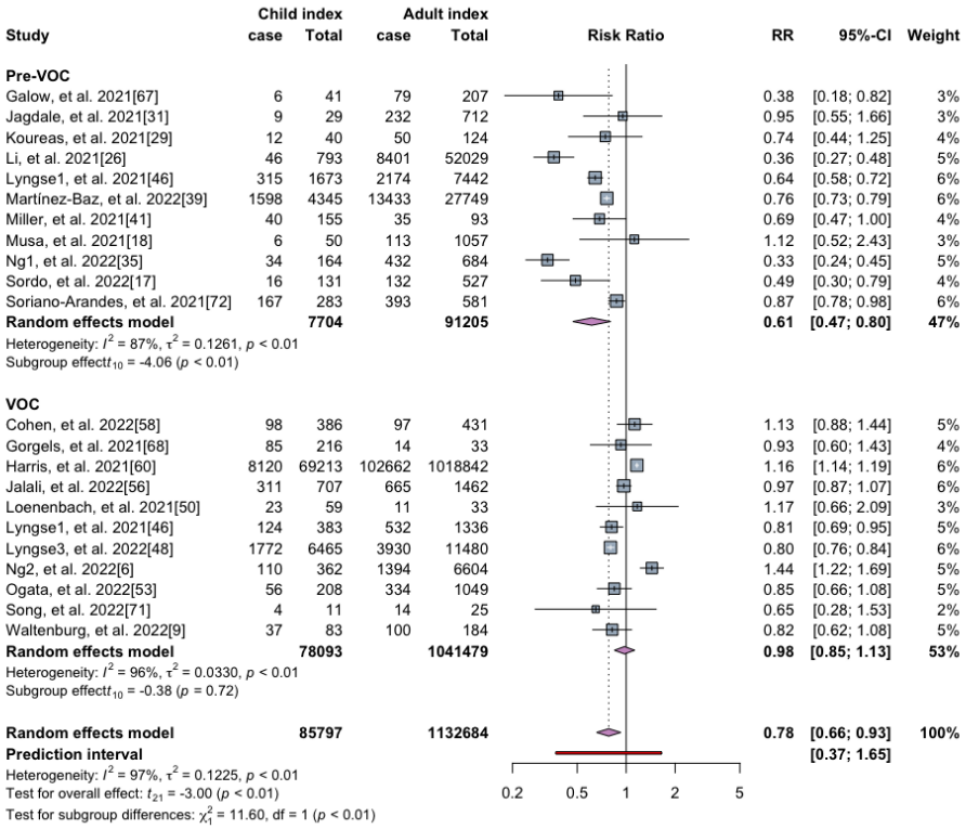

Figure S2. Relative risk for the secondary attack rate of household members when an adult or a child was identified as the index case. Cases describe the number of SARS-CoV-2 secondary infection identified in the study.

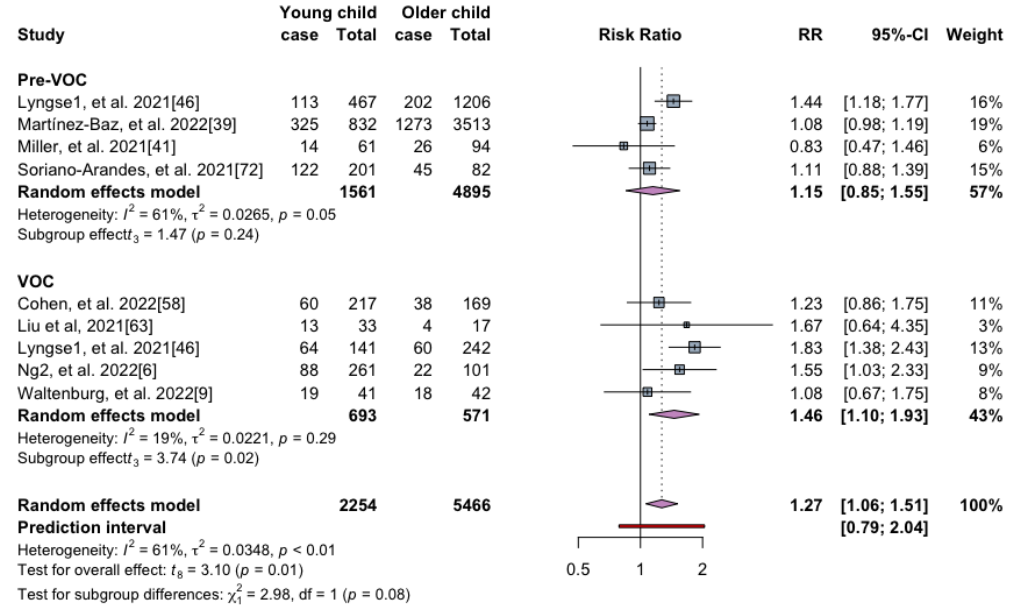

Figure S3. Relative risk of the secondary attack rate of household members when a young child or an older child was identified as the index case. Cases describe the number of SARS-CoV-2 secondary infection identified in the study.

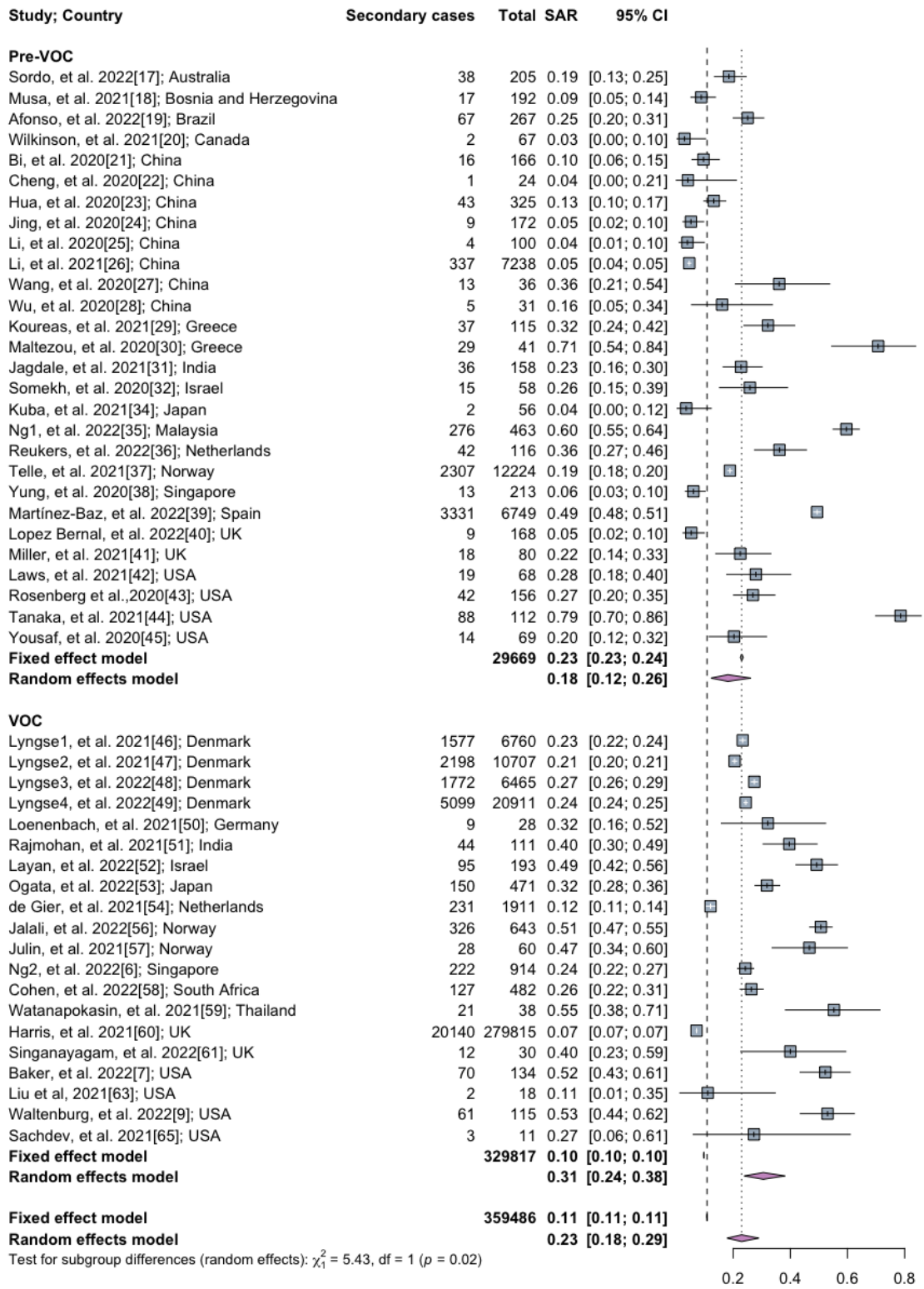

Figure S4. The secondary attack rate of children contacts in household SARS-CoV-2 transmission stratified by the pre-VOC and VOC period. Abbreviation: SAR, secondary attack rate; CI, confidence interval; SARS-CoV-2: severe acute respiratory syndrome coronavirus 2; VOC: variants of concern.

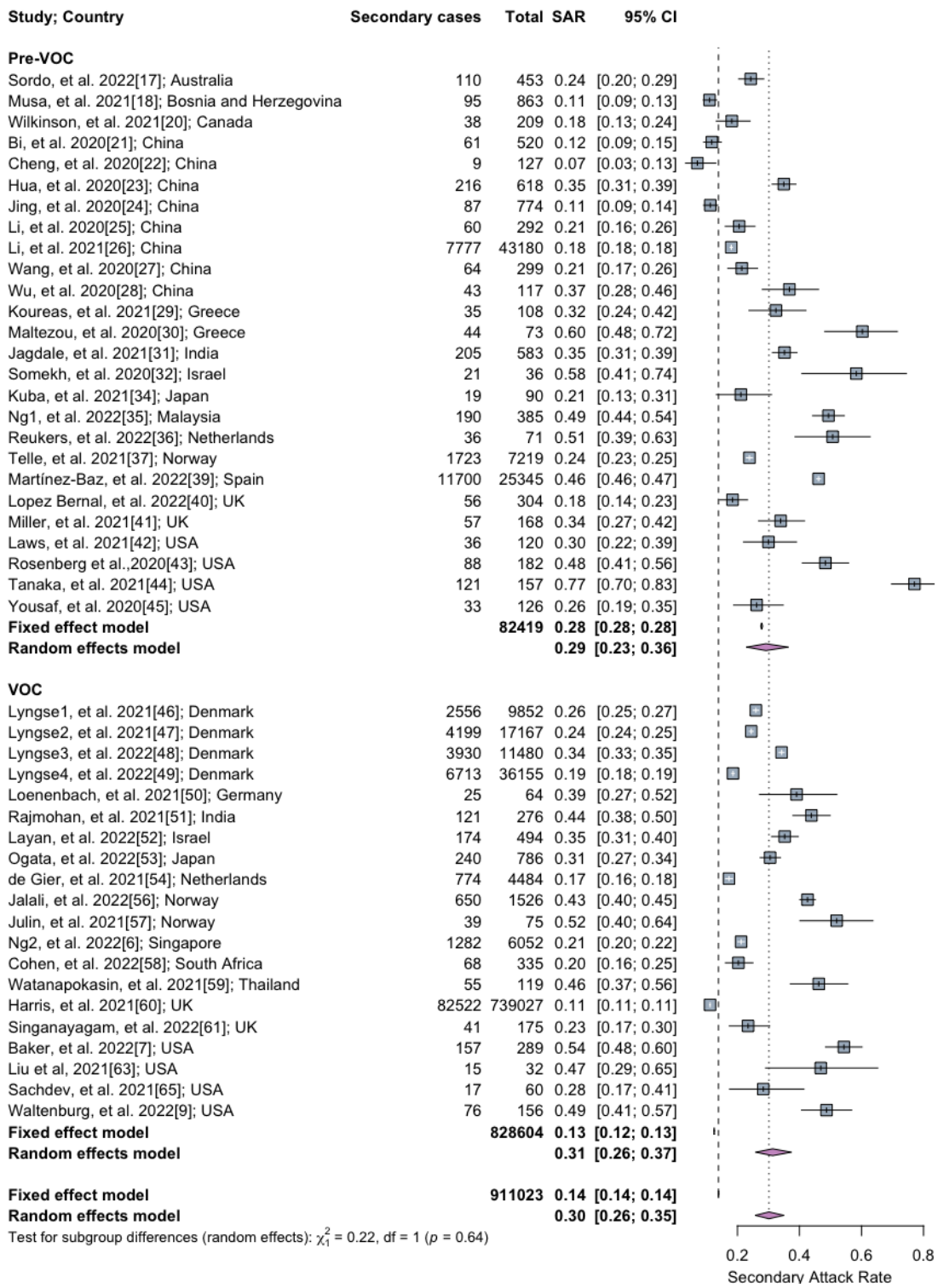

Figure S5. The secondary attack rate of adult contacts in household SARS-CoV-2 transmission stratified by the pre and VOC period. Abbreviation: SAR, secondary attack rate; CI, confidence interval; SARS-CoV-2: severe acute respiratory syndrome coronavirus 2; VOC: variants of concern.

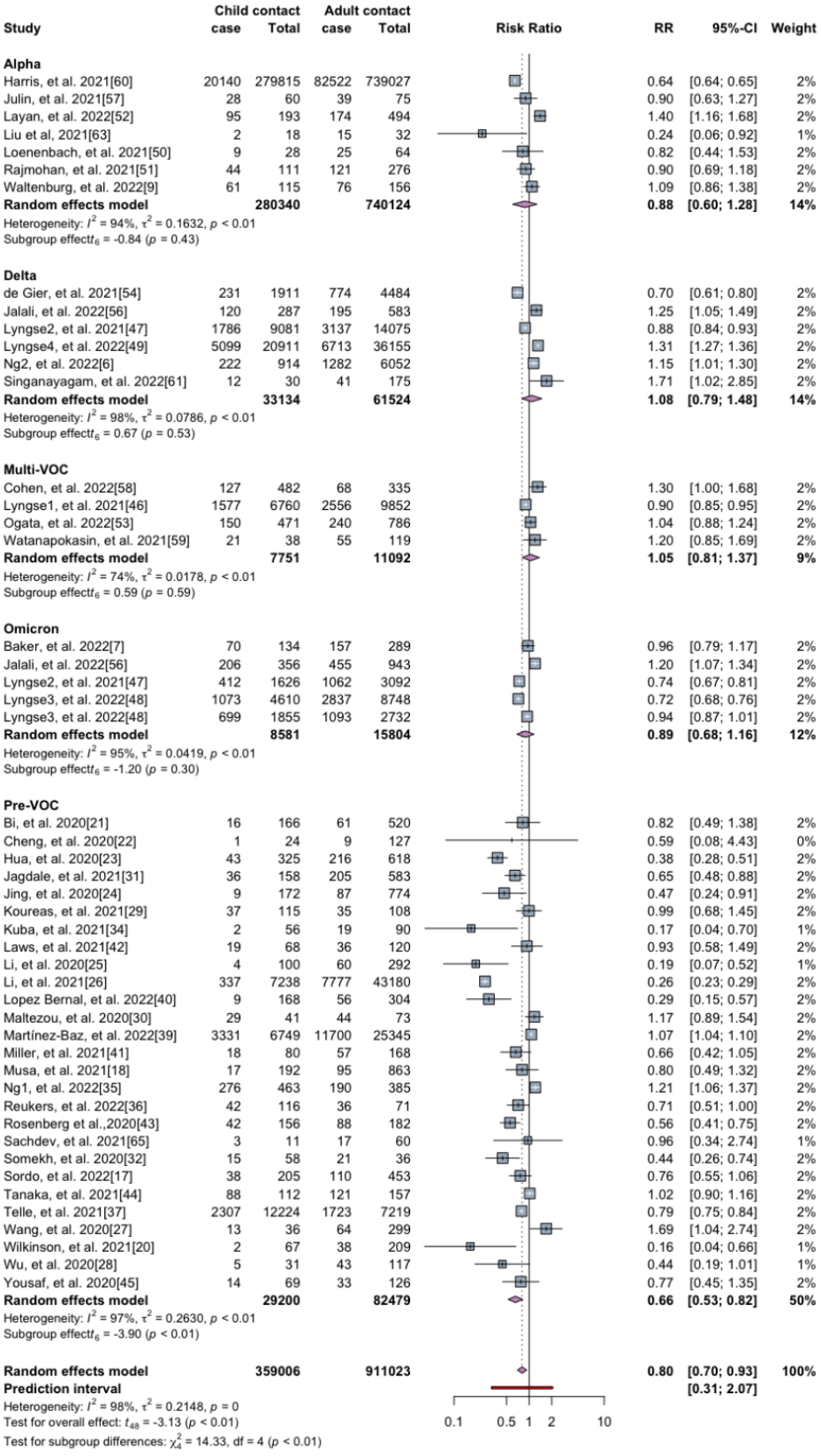

Figure S6. Relative risk of child contact and adult contact in household transmission of SARS-CoV-2 Alpha, Delta, Multi-VOC or Omicron compare with the Pre-VOC period. Cases describe the number of SARS-CoV-2 secondary infections identified in the study. Abbreviation: CI, confidence interval; RR: relative risk; VOC: variants of concern.