

Pooling Bio-Specimens in the Presence of Measurement Error and Non-Linearity in Dose-Response: Simulation Study in the Context of a Birth Cohort Investigating Risk Factors for Autism Spectrum Disorders

Table S1. Number of stable replicates. For pooled analysis: 1000 simulation realizations for each scenario ^a.

Cohort (Pool) Size	eOR ₁ (eβ ₁)	ME _{X₁} (σ ²)	Linear Model	Threshold Model	Saturation Model
225 (5)	1.5 (0.15)	Truth ^b	997–1000	1000	1000
		0.0625	998	999	1000
		0.25	1000	1000	999
		1	1000	1000	1000
	2.0 (0.25)	Truth ^b	998–999	998–1000	999–1000
		0.0625	997	999	998
		0.25	998	999	999
		1	999	1000	1000
	4.0 (0.5)	Truth ^b	951–964	979–987	987–992
		0.0625	949	970	980
		0.25	972	987	994
		1	999	999	994
450 (10)	1.5 (0.15)	Truth ^b	998–999	998–1000	999–1000
		0.0625	996	999	1000
		0.25	998	998	1000
		1	997	1000	999
	2.0 (0.25)	Truth ^b	990–996	993–1000	994–999
		0.0625	983	999	993
		0.25	993	995	994
		1	997	997	998
	4.0 (0.5)	Truth ^b	791–804	907–916	912–924
		0.0625	736	906	887
		0.25	839	929	928
		1	955	971	968
675 (15)	1.5 (0.15)	Truth ^b	997–999	997–1000	998–999
		0.0625	992	991	993
		0.25	994	996	993
		1	994	996	997
	2.0 (0.25)	Truth ^b	967–977	982–994	980–986
		0.0625	947	977	969
		0.25	970	987	979
		1	978	984	989

Table S1. *Cont.*

Cohort (Pool) Size	eOR ₁ (eβ ₁)	ME _{X₁} (σ ²)	Linear Model	Threshold Model	Saturation Model
		Truth ^b	522–537	740–770	747–749
675 (15)	4.0 (0.5)	0.0625	458	722	685
		0.25	603	798	769
		1	769	893	879

Notes: (^a) Number of replicates for which the OR_{x1}/OR_{w1} and OR_{w2} were between 0.1 and 10. (^b) Models without measurement error. Values vary as a different viable population was selected for each measurement error scenario.

Table S2. Description of 533. Unstable replicates of size 675 ($g = 15$), eOR = 4 and variance, ME_{x1} = 0.0625, n and percent of total ^a.

		OR _{w1}							
		≤0.1		Between 0.1 and 10		≥10		Total	
		n	% of Total	n	% of Total	n	% of Total	n	% of Total
OR _{w2}	≤0.1	10	1.9	0		167	31.3	177	33.2
	Between 0.1 and 10	0		0		103	19.3	103	19.3
	≥10	4	0.7	4	0.7	245	46.0	253	47.5
	Total	14	2.6	4	0.7	515	96.6	533	100.0

Notes: (^a) Excludes 9 replicates with convergences problems: 2 exceeded the iteration limit (50) and 7 had questionable convergence (The relative Hessian convergence criterion is greater than the limit of 0.0001).

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