

# Subset calibration report: conditional odds ratio

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The tables in this section contain performance for estimating the conditional odds ratio (cOR) using plasmode simulation.

## Results

### 5-year self-harm or hospitalization

Table 1: **Plasmode data simulation: 5-year self-harm or hospitalization, regression functions are glms, oracle conditional odds ratio (cOR).** Relative performance of estimators with sample size  $n = 50,337$  and 1000 simulation replications. The value of the estimand is -0.206. ESE = empirical standard error, ASE = asymptotic standard error, MAD = mean absolute deviation, RMSE = root mean squared error, rRMSE = robust RMSE (using median bias and MAD), Oracle coverage = coverage of a confidence interval based on the ESE, Nominal coverage = coverage of a confidence interval based on the ASE.

Estimator	Mean bias	Median bias	ESE	ASE	MAD	RMSE	rRMSE	Nominal cover-age	Oracle cover-age	Power	Prop. completed
Benchmark model	-0.002	-0.002	0.034	0.033	0.031	0.033	0.031	0.937	0.939	1.000	100.0
Complete-case	0.007	0.008	0.051	0.050	0.054	0.051	0.055	0.950	0.959	0.979	100.0
Confounded model	-0.073	-0.072	0.032	0.032	0.030	0.080	0.078	0.372	0.383	1.000	100.0
IPW	0.008	0.008	0.052	0.051	0.052	0.051	0.053	0.947	0.955	0.978	100.0
Raking (vanilla)	0.007	0.007	0.036	0.035	0.032	0.036	0.033	0.936	0.942	0.999	99.2
MICE	0.006	0.005	0.036	0.034	0.032	0.035	0.032	0.930	0.943	0.999	100.0
MI-XGB	0.246	0.243	0.097	0.048	0.097	0.251	0.262	0.054	0.286	0.366	100.0
MI-RF	-0.030	-0.029	0.033	0.034	0.030	0.045	0.042	0.868	0.861	1.000	100.0
IPCW-TMLE-M	0.009	0.010	0.051	0.051	0.051	0.051	0.052	0.957	0.959	0.980	100.0
IPCW-TMLE-MTO	0.006	0.007	0.051	0.050	0.051	0.051	0.052	0.955	0.957	0.983	100.0

Table 2: **Plasmode data simulation: 5-year self-harm or hospitalization, regression functions are glms, census conditional odds ratio (cOR).** Relative performance of estimators with sample size  $n = 50,337$  and 1000 simulation replications. The value of the estimand is -0.192. ESE = empirical standard error, ASE = asymptotic standard error, MAD = mean absolute deviation, RMSE = root mean squared error, rRMSE = robust RMSE (using median bias and MAD), Oracle coverage = coverage of a confidence interval based on the ESE, Nominal coverage = coverage of a confidence interval based on the ASE.

Estimator	Mean bias	Median bias	ESE	ASE	MAD	RMSE	rRMSE	Oracle cover-age	Nominal cover-age	Power	Prop. completed
Benchmark model	-0.007	-0.007	0.034	0.033	0.032	0.034	0.032	0.939	0.939	1.000	100.0
Complete-case	-0.006	-0.005	0.051	0.050	0.054	0.051	0.054	0.949	0.945	0.979	100.0
Confounded model	-0.087	-0.086	0.032	0.032	0.030	0.092	0.091	0.206	0.191	1.000	100.0
IPW	-0.006	-0.006	0.052	0.051	0.052	0.051	0.052	0.946	0.943	0.978	100.0
Raking (vanilla)	-0.007	-0.007	0.036	0.035	0.032	0.036	0.033	0.935	0.933	0.999	99.2
MICE	-0.008	-0.009	0.036	0.034	0.032	0.035	0.033	0.932	0.925	0.999	100.0
MI-XGB	0.233	0.230	0.097	0.048	0.097	0.238	0.249	0.337	0.071	0.366	100.0
MI-RF	-0.044	-0.043	0.033	0.034	0.030	0.055	0.052	0.755	0.770	1.000	100.0
IPCW-TMLE-M	-0.005	-0.004	0.051	0.051	0.051	0.051	0.051	0.947	0.951	0.980	100.0
IPCW-TMLE-MTO	-0.007	-0.007	0.051	0.050	0.051	0.051	0.052	0.946	0.946	0.983	100.0

Table 3: **Plasmode data simulation: 5-year self-harm or hospitalization, regression functions are trees, census conditional odds ratio (cOR).** Relative performance of estimators with sample size  $n = 50,337$  and 1000 simulation replications. The value of the estimand is -0.069. ESE = empirical standard error, ASE = asymptotic standard error, MAD = mean absolute deviation, RMSE = root mean squared error, rRMSE = robust RMSE (using median bias and MAD), Oracle coverage = coverage of a confidence interval based on the ESE, Nominal coverage = coverage of a confidence interval based on the ASE. Estimators that are mismatched with the estimand (i.e., are estimating a different parameter) are emphasized using a star.

Estimator	Mean bias	Median bias	ESE	ASE	MAD	RMSE	rRMSE	Oracle coverage	Nominal coverage	Power	Prop. completed
Benchmark model	0.002	0.001	0.032	0.032	0.030	0.032	0.030	0.950	0.953	0.571	100.0
Complete-case	0.008	0.007	0.047	0.047	0.048	0.048	0.048	0.949	0.950	0.243	100.0
Confounded model	-0.039	-0.038	0.030	0.031	0.029	0.049	0.048	0.752	0.761	0.946	100.0
IPW	0.007	0.005	0.048	0.048	0.047	0.048	0.048	0.949	0.950	0.247	100.0
Raking (vanilla)	0.001	0.002	0.033	0.034	0.033	0.034	0.033	0.949	0.950	0.529	99.3
MICE	0.003	0.003	0.033	0.033	0.032	0.033	0.032	0.944	0.943	0.529	100.0
MI-XGB	0.051	0.053	0.096	0.046	0.095	0.069	0.109	0.907	0.596	0.356	100.0
MI-RF	-0.015	-0.016	0.031	0.032	0.030	0.036	0.034	0.918	0.937	0.756	100.0
IPCW-TMLE-M	0.002	0.003	0.042	0.048	0.042	0.048	0.042	0.949	0.976	0.245	100.0
IPCW-TMLE-MTO	-0.003	-0.004	0.041	0.047	0.040	0.047	0.040	0.952	0.970	0.305	100.0

1-year self-harm

Table 4: **Plasmode data simulation: 1-year self-harm or hospitalization, regression functions are glms, oracle conditional odds ratio (cOR)**. Relative performance of estimators with sample size  $n = 50,337$  and 1000 simulation replications. The value of the estimand is 0.104. ESE = empirical standard error, ASE = asymptotic standard error, MAD = mean absolute deviation, RMSE = root mean squared error, rRMSE = robust RMSE (using median bias and MAD), Oracle coverage = coverage of a confidence interval based on the ESE, Nominal coverage = coverage of a confidence interval based on the ASE. Estimators that are mismatched with the estimand (i.e., are estimating a different parameter) are emphasized using a star.

Estimator	Mean bias	Median bias	ESE	ASE	MAD	RMSE	rRMSE	Nominal cover-age	Oracle cover-age	Power	Prop. completed
Benchmark model	0.007	0.008	0.120	0.115	0.121	0.116	0.121	0.940	0.948	0.167	98.6
Complete-case*	0.005	0.000	0.174	0.167	0.189	0.167	0.189	0.944	0.949	0.106	98.6
Confounded model*	-0.049	-0.049	0.114	0.111	0.113	0.122	0.124	0.924	0.932	0.087	98.6
IPW*	0.005	0.000	0.175	0.167	0.191	0.168	0.191	0.951	0.955	0.099	98.6
Raking (vanilla)*	0.009	0.009	0.125	0.123	0.128	0.124	0.128	0.948	0.952	0.147	99.2
MICE*	-0.006	-0.007	0.123	0.117	0.125	0.117	0.125	0.934	0.943	0.140	98.6
MI-RF*	0.005	0.006	0.117	0.117	0.118	0.117	0.118	0.951	0.946	0.151	98.6
IPCW-TMLE-M*	0.004	0.000	0.172	0.168	0.186	0.168	0.186	0.951	0.959	0.096	100.0
IPCW-TMLE-MTO*	0.001	-0.005	0.172	0.166	0.184	0.166	0.184	0.948	0.955	0.098	100.0
r-IPCW-TMLE-MTO*	0.001	-0.004	0.172	0.167	0.185	0.167	0.185	0.948	0.955	0.097	100.0

Table 5: **Plasmode data simulation: 1-year self-harm or hospitalization, regression functions are glms, census conditional odds ratio (cOR)**. Relative performance of estimators with sample size  $n = 50,337$  and 1000 simulation replications. The value of the estimand is 0.113. ESE = empirical standard error, ASE = asymptotic standard error, MAD = mean absolute deviation, RMSE = root mean squared error, rRMSE = robust RMSE (using median bias and MAD), Oracle coverage = coverage of a confidence interval based on the ESE, Nominal coverage = coverage of a confidence interval based on the ASE. Estimators that are mismatched with the estimand (i.e., are estimating a different parameter) are emphasized using a star.

Estimator	Mean bias	Median bias	ESE	ASE	MAD	RMSE	rRMSE	Oracle cover-age	Nominal cover-age	Power	Prop. completed
Benchmark model	-0.001	0.000	0.119	0.115	0.121	0.115	0.121	0.948	0.939	0.170	98.6
Complete-case	-0.003	-0.009	0.174	0.167	0.189	0.167	0.189	0.953	0.947	0.106	98.6
Confounded model	-0.058	-0.058	0.114	0.111	0.113	0.125	0.127	0.921	0.912	0.087	98.6
IPW	-0.004	-0.009	0.175	0.167	0.191	0.167	0.191	0.957	0.949	0.099	98.6
Raking (vanilla)	0.001	0.001	0.125	0.123	0.128	0.123	0.128	0.953	0.950	0.147	99.2
MICE	-0.014	-0.015	0.123	0.117	0.125	0.118	0.126	0.944	0.934	0.140	98.6
MI-RF	-0.003	-0.002	0.117	0.117	0.118	0.117	0.118	0.942	0.944	0.151	98.6
IPCW-TMLE-M	-0.005	-0.008	0.172	0.168	0.186	0.168	0.186	0.962	0.950	0.096	100.0
IPCW-TMLE-MTO	-0.007	-0.014	0.172	0.166	0.184	0.167	0.184	0.956	0.944	0.098	100.0
r-IPCW-TMLE-MTO	-0.007	-0.013	0.172	0.167	0.185	0.167	0.186	0.957	0.949	0.097	100.0

Table 6: **Plasmode data simulation: 1-year self-harm or hospitalization, regression functions are trees, census conditional odds ratio (cOR).** Relative performance of estimators with sample size  $n = 50,337$  and 1000 simulation replications. The value of the estimand is 0.017. ESE = empirical standard error, ASE = asymptotic standard error, MAD = mean absolute deviation, RMSE = root mean squared error, rRMSE = robust RMSE (using median bias and MAD), Oracle coverage = coverage of a confidence interval based on the ESE, Nominal coverage = coverage of a confidence interval based on the ASE. Estimators that are mismatched with the estimand (i.e., are estimating a different parameter) are emphasized using a star.

Estimator	Mean bias	Median bias	ESE	ASE	MAD	RMSE	rRMSE	Oracle coverage	Nominal coverage	Power	Prop. completed
Benchmark model	0.000	0.001	0.111	0.112	0.111	0.112	0.111	0.952	0.954	0.052	98.1
Complete-case	0.064	0.066	0.164	0.163	0.163	0.175	0.175	0.927	0.927	0.083	98.1
Confounded model	-0.049	-0.050	0.107	0.109	0.105	0.119	0.116	0.923	0.925	0.059	98.1
IPW	0.064	0.068	0.166	0.163	0.167	0.175	0.181	0.932	0.928	0.084	98.1
Raking (vanilla)	0.055	0.055	0.113	0.120	0.111	0.132	0.123	0.920	0.939	0.082	98.1
MICE	0.044	0.043	0.114	0.113	0.111	0.121	0.119	0.932	0.930	0.085	98.1
MI-RF	0.039	0.038	0.107	0.113	0.103	0.119	0.110	0.936	0.953	0.068	98.1
IPCW-TMLE-M	0.019	0.024	0.149	0.163	0.153	0.164	0.155	0.945	0.969	0.037	100.0
IPCW-TMLE-MTO	0.038	0.043	0.147	0.158	0.150	0.163	0.156	0.946	0.967	0.042	100.0
r-IPCW-TMLE-MTO	0.035	0.040	0.148	0.159	0.151	0.163	0.156	0.947	0.967	0.039	100.0