Subset calibration report: marginal odds ratio

Sentinel Subset Calibration Workgroup

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The tables in this section contain performance for estimating the marginal odds ratio (mOR) 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 marginal odds ratio (mOR)**. Relative performance of estimators with sample size n = 50,337 and 1000 simulation replications. The value of the estimand is -0.189. 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 coverage	Oracle coverage	Power	Prop. completed
Benchmark model	-0.002	-0.001	0.031	0.031	0.029	0.031	0.029	0.939	0.940	1.000	100.0
Complete-case	0.004	0.005	0.048	0.047	0.051	0.047	0.051	0.952	0.953	0.979	100.0
Confounded model	-0.070	-0.069	0.030	0.030	0.028	0.076	0.074	0.340	0.356	1.000	100.0
IPW	0.006	0.007	0.048	0.047	0.048	0.047	0.048	0.948	0.950	0.978	100.0
Raking (vanilla)	0.005	0.006	0.033	0.033	0.030	0.033	0.030	0.935	0.943	0.999	99.2
MICE	0.005	0.004	0.033	0.032	0.029	0.032	0.029	0.928	0.942	0.999	100.0
MI-XGB	0.226	0.224	0.088	0.045	0.089	0.230	0.241	0.055	0.277	0.358	100.0
MI-RF	-0.029	-0.028	0.031	0.032	0.028	0.043	0.040	0.859	0.852	1.000	100.0
IPCW-TMLE-M	0.006	0.006	0.048	0.048	0.048	0.048	0.048	0.955	0.957	0.983	100.0
IPCW-TMLE-MTO	0.002	0.003	0.048	0.048	0.048	0.048	0.048	0.957	0.956	0.986	100.0

Table 2: **Plasmode data simulation: 5-year self-harm or hospitalization, regression functions are glms, census marginal odds ratio (mOR)**. Relative performance of estimators with sample size n = 50,337 and 1000 simulation replications. The value of the estimand is -0.177. 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 coverage	Nominal coverage	Power	Prop. completed
Benchmark model	-0.006	-0.006	0.031	0.031	0.029	0.031	0.029	0.939	0.935	1.000	100.0
Complete-case	-0.008	-0.007	0.048	0.047	0.051	0.048	0.051	0.946	0.943	0.979	100.0
Confounded model	-0.082	-0.081	0.030	0.030	0.028	0.087	0.086	0.196	0.179	1.000	100.0
IPW	-0.006	-0.005	0.048	0.047	0.048	0.047	0.048	0.949	0.947	0.978	100.0
Raking (vanilla)	-0.007	-0.006	0.033	0.033	0.030	0.033	0.030	0.938	0.934	0.999	99.2
MICE	-0.007	-0.008	0.033	0.032	0.029	0.032	0.030	0.935	0.924	0.999	100.0
MI-XGB	0.214	0.212	0.088	0.045	0.089	0.219	0.230	0.323	0.069	0.358	100.0
MI-RF	-0.041	-0.040	0.031	0.032	0.028	0.052	0.049	0.757	0.766	1.000	100.0
IPCW-TMLE-M	-0.006	-0.006	0.048	0.048	0.048	0.048	0.048	0.949	0.950	0.983	100.0
IPCW-TMLE-MTO	-0.010	-0.009	0.048	0.048	0.048	0.049	0.049	0.946	0.946	0.986	100.0

Table 3: **Plasmode data simulation: 5-year self-harm or hospitalization, regression functions are trees, oracle marginal odds ratio (mOR)**. Relative performance of estimators with sample size n = 50,337 and 1000 simulation replications. The value of the estimand is -0.081. 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 coverage	Oracle coverage	Power	Prop. completed
Complete-case*	0.023	0.021	0.045	0.045	0.045	0.051	0.050	0.913	0.911	0.239	100.0
Confounded model*	-0.022	-0.021	0.029	0.029	0.027	0.036	0.035	0.887	0.882	0.946	100.0
IPW*	0.022	0.020	0.045	0.045	0.045	0.050	0.049	0.924	0.923	0.247	100.0
Raking (vanilla)*	0.016	0.016	0.032	0.032	0.031	0.036	0.035	0.919	0.920	0.529	99.3
MICE*	0.018	0.018	0.032	0.031	0.031	0.036	0.036	0.909	0.921	0.531	100.0
MI-XGB*	0.063	0.065	0.090	0.044	0.089	0.077	0.110	0.560	0.886	0.357	100.0
MI-RF*	0.000	0.000	0.030	0.031	0.028	0.031	0.028	0.954	0.949	0.757	100.0
IPCW-TMLE-M	0.014	0.014	0.039	0.046	0.039	0.048	0.042	0.964	0.929	0.265	100.0
IPCW-TMLE-MTO	-0.006	-0.007	0.039	0.044	0.040	0.045	0.040	0.971	0.951	0.512	100.0

Table 4: **Plasmode data simulation: 5-year self-harm or hospitalization, regression functions are trees, census marginal odds ratio (mOR)**. Relative performance of estimators with sample size n = 50,337 and 1000 simulation replications. The value of the estimand is -0.065. 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	0.030	0.030	0.029	0.030	0.029	0.950	0.953	0.566	100.0
Complete-case	0.008	0.006	0.045	0.045	0.045	0.046	0.046	0.948	0.949	0.239	100.0
Confounded model	-0.037	-0.036	0.029	0.029	0.027	0.047	0.046	0.751	0.760	0.946	100.0
IPW	0.006	0.005	0.045	0.045	0.045	0.046	0.045	0.947	0.949	0.247	100.0
Raking (vanilla)	0.001	0.001	0.032	0.032	0.031	0.032	0.031	0.949	0.949	0.529	99.3
MICE	0.003	0.003	0.032	0.031	0.031	0.031	0.031	0.944	0.943	0.531	100.0
MI-XGB	0.048	0.050	0.090	0.044	0.089	0.065	0.102	0.908	0.595	0.357	100.0
MI-RF	-0.015	-0.015	0.030	0.031	0.028	0.034	0.032	0.920	0.938	0.757	100.0
IPCW-TMLE-M*	-0.001	-0.001	0.039	0.046	0.039	0.046	0.039	0.947	0.973	0.265	100.0
IPCW-TMLE-MTO*	-0.022	-0.022	0.039	0.044	0.040	0.049	0.046	0.923	0.955	0.512	100.0

1-year self-harm

Table 5: **Plasmode data simulation: 1-year self-harm or hospitalization, regression functions are glms, oracle marginal odds ratio (mOR)**. Relative performance of estimators with sample size n = 50,337 and 1000 simulation replications. The value of the estimand is 0.106. 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 coverage	Oracle coverage	Power	Prop. completed
Benchmark model	0.000	0.001	0.115	0.110	0.116	0.110	0.116	0.938	0.948	0.163	98.6
Complete-case*	-0.002	-0.007	0.167	0.160	0.181	0.160	0.181	0.947	0.950	0.109	98.6
Confounded model*	-0.053	-0.053	0.111	0.108	0.110	0.120	0.123	0.917	0.922	0.087	98.6
IPW*	-0.002	-0.007	0.167	0.160	0.183	0.160	0.183	0.949	0.955	0.099	98.6
Raking (vanilla)*	0.002	0.003	0.120	0.118	0.123	0.118	0.123	0.951	0.954	0.145	99.2
MICE*	-0.012	-0.014	0.117	0.111	0.119	0.112	0.120	0.934	0.942	0.141	98.6
MI-RF*	-0.001	0.000	0.112	0.112	0.113	0.112	0.113	0.944	0.944	0.146	98.6
IPCW-TMLE-M	0.003	0.003	0.168	0.165	0.174	0.165	0.174	0.951	0.952	0.102	100.0
IPCW-TMLE-MTO	0.001	-0.004	0.164	0.160	0.170	0.160	0.170	0.948	0.951	0.096	100.0
r-IPCW-TMLE-MTO	0.000	-0.006	0.164	0.161	0.168	0.161	0.168	0.943	0.949	0.096	100.0

Table 6: **Plasmode data simulation: 1-year self-harm or hospitalization, regression functions are glms, census marginal odds ratio (mOR)**. Relative performance of estimators with sample size n = 50,337 and 1000 simulation replications. The value of the estimand is 0.108. 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	-0.001	-0.001	0.114	0.110	0.116	0.110	0.116	0.948	0.938	0.173	98.6
Complete-case	-0.003	-0.008	0.167	0.160	0.181	0.160	0.181	0.952	0.946	0.109	98.6
Confounded model	-0.055	-0.055	0.111	0.108	0.110	0.121	0.123	0.923	0.915	0.087	98.6
IPW	-0.004	-0.008	0.167	0.160	0.183	0.160	0.183	0.957	0.949	0.099	98.6
Raking (vanilla)	0.001	0.001	0.120	0.118	0.123	0.118	0.123	0.952	0.950	0.145	99.2
MICE	-0.014	-0.016	0.117	0.111	0.119	0.112	0.120	0.944	0.934	0.141	98.6
MI-RF	-0.002	-0.002	0.112	0.112	0.113	0.112	0.113	0.943	0.944	0.146	98.6
IPCW-TMLE-M*	0.002	0.001	0.168	0.165	0.174	0.165	0.174	0.952	0.951	0.102	100.0
IPCW-TMLE-MTO*	-0.001	-0.006	0.164	0.160	0.170	0.160	0.170	0.951	0.947	0.096	100.0
r-IPCW-TMLE-MTO*	-0.002	-0.008	0.164	0.161	0.168	0.161	0.168	0.950	0.944	0.096	100.0

Table 7: **Plasmode data simulation: 1-year self-harm or hospitalization, regression functions are trees, oracle marginal odds ratio (mOR)**. Relative performance of estimators with sample size n = 50,337 and 1000 simulation replications. The value of the estimand is -0.033. 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 coverage	Oracle coverage	Power	Prop. completed
Complete-case*	0.112	0.114	0.160	0.158	0.157	0.194	0.195	0.897	0.897	0.084	98.1
Confounded model*	0.002	0.001	0.104	0.104	0.102	0.104	0.102	0.950	0.947	0.064	98.1
IPW*	0.112	0.116	0.161	0.158	0.163	0.194	0.200	0.895	0.896	0.084	98.1
Raking (vanilla)*	0.103	0.103	0.111	0.117	0.108	0.156	0.149	0.867	0.846	0.082	98.1
MICE*	0.092	0.092	0.111	0.109	0.108	0.142	0.142	0.863	0.875	0.091	98.1
MI-RF*	0.088	0.087	0.105	0.108	0.101	0.140	0.133	0.888	0.870	0.072	98.1
IPCW-TMLE-M	0.082	0.085	0.149	0.164	0.152	0.183	0.174	0.944	0.919	0.034	100.0
IPCW-TMLE-MTO	-0.002	0.002	0.146	0.158	0.144	0.158	0.144	0.964	0.945	0.049	100.0
r-IPCW-TMLE-MTO	-0.004	-0.001	0.148	0.158	0.149	0.159	0.149	0.960	0.942	0.045	100.0

Table 8: **Plasmode data simulation: 1-year self-harm or hospitalization, regression functions are trees, census marginal odds ratio (mOR)**. 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	0.000	0.108	0.108	0.107	0.108	0.107	0.953	0.954	0.052	98.1
Complete-case	0.063	0.065	0.160	0.158	0.157	0.170	0.170	0.927	0.929	0.084	98.1
Confounded model	-0.048	-0.049	0.104	0.104	0.102	0.115	0.113	0.923	0.922	0.064	98.1
IPW	0.062	0.066	0.161	0.158	0.163	0.170	0.176	0.930	0.930	0.084	98.1
Raking (vanilla)	0.054	0.053	0.111	0.117	0.108	0.129	0.120	0.920	0.939	0.082	98.1
MICE	0.043	0.042	0.111	0.109	0.108	0.117	0.116	0.929	0.924	0.091	98.1
MI-RF	0.038	0.037	0.105	0.108	0.101	0.115	0.107	0.935	0.947	0.072	98.1
IPCW-TMLE-M*	0.032	0.036	0.149	0.164	0.152	0.167	0.156	0.937	0.971	0.034	100.0
IPCW-TMLE-MTO*	-0.052	-0.048	0.146	0.158	0.144	0.167	0.152	0.932	0.951	0.049	100.0
r-IPCW-TMLE-MTO*	-0.054	-0.051	0.148	0.158	0.149	0.167	0.158	0.926	0.944	0.045	100.0