Testing different models (fitting one time)

Using control only

$\beta_0 = -6$**: prevalence** ≈ 0.01

Model	β_0	β_1	β_2	β_3	Abs. Bias	Bias(%)
Default LOM	-5.119(0.449)	-0.040(0.646)	1.210(1.238)	1.388(1.273)	1.254	0.475
CLOM(X5X6)	-5.589(0.482)	0.001(0.676)	1.485(1.401)	1.174(1.358)	1.466	0.555
CLOM(X7X8)	-5.123(0.457)	-0.154(0.575)	0.842(1.049)	0.982(1.026)	1.658	0.628
CLOM(X5678)	-5.611(0.491)	-0.098(0.614)	1.137(1.222)	0.781(1.144)	1.859	0.704
MSLOM(X7X8)	-5.258(0.466)	0.170(0.803)	1.450(1.407)	0.707(1.358)	1.935	0.732
MSLOM(X1278)	-5.192(0.485)	-0.055(0.662)	1.062(1.246)	1.107(1.270)	1.535	0.581
MSLOM(X3478)	-5.203(0.484)	0.058(0.747)	1.555(1.565)	0.543(1.436)	2.099	0.794
MSLOM(X5678)	-5.301(0.461)	0.144(0.783)	1.664(1.520)	0.810(1.453)	1.832	0.693
MSLOM(X123478)	-5.091(0.526)	-0.175(0.611)	0.952(1.259)	1.171(1.319)	1.471	0.557
MSLOM(all)	-5.132(0.524)	-0.199(0.592)	1.129(1.365)	1.299(1.449)	1.343	0.508
DR	-6.138(0.293)	0.349(0.477)	2.114(0.969)	0.332(0.840)	2.308	0.874

Marginal: $RERI_{OR}^{true} = 2.642$, $RERI_{RR}^{true} = 2.572$; Conditional: $RERI_{OR}^{true} = 2.64$

$\beta_0 = -4.5$**: prevalence** ≈ 0.05

Model	β_0	β_1	β_2	β_3	Abs. Bias	Bias(%)
Default LOM	-3.881(0.245)	0.060(0.379)	0.822(0.580)	2.301(0.792)	0.018	0.008
CLOM(X5X6)	-4.295(0.263)	0.104(0.400)	1.057(0.665)	2.351(0.876)	0.289	0.109
CLOM(X7X8)	-3.936(0.252)	-0.081(0.334)	0.480(0.482)	1.682(0.612)	0.958	0.363
CLOM(X5678)	-4.390(0.275)	-0.021(0.361)	0.730(0.573)	1.724(0.705)	0.916	0.347
MSLOM(X7X8)	-3.697(0.274)	-0.088(0.346)	0.463(0.500)	1.702(0.619)	0.617	0.266
MSLOM(X1278)	-3.826(0.277)	0.025(0.417)	0.386(0.491)	2.379(0.917)	0.060	0.026
MSLOM(X3478)	-3.472(0.325)	-0.228(0.327)	0.205(0.472)	1.765(0.606)	0.554	0.239
MSLOM(X5678)	-3.748(0.271)	-0.086(0.344)	0.610(0.546)	1.893(0.685)	0.426	0.184
MSLOM(X123478)	-3.659(0.292)	-0.067(0.405)	0.180(0.436)	2.411(0.884)	0.092	0.040
MSLOM(all)	-3.719(0.287)	-0.057(0.407)	0.336(0.487)	2.713(0.998)	0.394	0.170
DR	-4.430(0.139)	-0.021(0.175)	0.726(0.280)	1.781(0.353)	0.859	0.325

Marginal: $RERI_{OR}^{true} = 2.319$, $RERI_{RR}^{true} = 2.091$; Conditional: $RERI_{OR}^{true} = 2.64$

$\beta_0 = -3.7$**: prevalence** ≈ 0.1

Model	β_0	β_1	β_2	β_3	Abs. Bias	Bias(%)
Default LOM	-3.107(0.170)	-0.070(0.239)	0.861(0.414)	1.634(0.497)	0.489	0.230
CLOM(X5X6)	-3.529(0.187)	-0.035(0.254)	1.145(0.491)	1.713(0.580)	0.927	0.351
CLOM(X7X8)	-3.199(0.178)	-0.139(0.226)	0.640(0.375)	1.379(0.444)	1.261	0.478
CLOM(X5678)	-3.670(0.197)	-0.099(0.243)	0.945(0.461)	1.487(0.541)	1.153	0.437
MSLOM(X7X8)	-2.947(0.192)	-0.194(0.220)	0.559(0.375)	1.415(0.433)	0.708	0.333
MSLOM(X1278)	-3.025(0.197)	-0.151(0.246)	0.508(0.380)	1.734(0.545)	0.389	0.183
MSLOM(X3478)	-2.893(0.219)	-0.227(0.229)	0.422(0.381)	1.621(0.461)	0.502	0.236
MSLOM(X5678)	-3.040(0.188)	-0.159(0.227)	0.786(0.423)	1.683(0.514)	0.440	0.207
MSLOM(X123478)	-3.011(0.204)	-0.141(0.262)	0.410(0.365)	1.953(0.583)	0.170	0.080
MSLOM(all)	-3.101(0.199)	-0.110(0.269)	0.622(0.414)	2.334(0.695)	0.211	0.099
DR	-3.709(0.102)	-0.142(0.115)	0.919(0.226)	1.617(0.265)	1.023	0.388

Marginal: $RERI_{OR}^{true} = 2.123$, $RERI_{RR}^{true} = 1.735$; Conditional: $RERI_{OR}^{true} = 2.64$

$\beta_0 = -3$**: prevalence** ≈ 0.2

Model	β_0	β_1	β_2	β_3	Abs. Bias	Bias(%)
Default LOM	-2.480(0.129)	0.199(0.221)	0.700(0.294)	1.443(0.389)	0.508	0.260
CLOM(X5X6)	-2.794(0.140)	0.251(0.237)	0.935(0.347)	1.600(0.460)	1.040	0.394
CLOM(X7X8)	-2.594(0.136)	0.168(0.221)	0.583(0.284)	1.365(0.386)	1.275	0.483
CLOM(X5678)	-2.956(0.149)	0.231(0.242)	0.844(0.345)	1.595(0.478)	1.045	0.396
MSLOM(X7X8)	-2.300(0.153)	0.013(0.205)	0.396(0.268)	1.370(0.350)	0.581	0.298
MSLOM(X1278)	-2.336(0.153)	-0.052(0.200)	0.311(0.262)	1.730(0.420)	0.221	0.113
MSLOM(X3478)	-2.298(0.162)	-0.004(0.211)	0.396(0.284)	1.500(0.385)	0.451	0.231
MSLOM(X5678)	-2.385(0.154)	0.074(0.218)	0.586(0.306)	1.702(0.425)	0.249	0.128
MSLOM(X123478)	-2.351(0.158)	-0.030(0.213)	0.321(0.272)	1.800(0.448)	0.151	0.077
MSLOM(all)	-2.422(0.162)	0.003(0.224)	0.484(0.311)	2.175(0.533)	0.224	0.115
DR	-2.860(0.076)	0.066(0.105)	0.611(0.149)	1.663(0.205)	0.977	0.370

Marginal: $RERI_{OR}^{true} = 1.951$, $RERI_{RR}^{true} = 1.384$; Conditional: $RERI_{OR}^{true} = 2.64$

$\beta_0 = -2$**: prevalence** ≈ 0.4

Model	β_0	β_1	β_2	β_3	Abs. Bias	Bias(%)
Default LOM	-1.611(0.093)	0.238(0.164)	0.524(0.197)	2.010(0.342)	0.250	0.142
CLOM(X5X6)	-1.861(0.101)	0.304(0.182)	0.751(0.239)	2.549(0.451)	0.091	0.034
CLOM(X7X8)	-1.701(0.098)	0.251(0.172)	0.486(0.200)	2.140(0.379)	0.500	0.189
CLOM(X5678)	-2.000(0.108)	0.337(0.195)	0.746(0.251)	2.923(0.540)	0.283	0.107
MSLOM(X7X8)	-1.534(0.107)	0.170(0.167)	0.399(0.196)	1.979(0.360)	0.219	0.124
MSLOM(X1278)	-1.569(0.109)	0.211(0.193)	0.373(0.204)	1.993(0.413)	0.233	0.132
MSLOM(X3478)	-1.513(0.110)	0.132(0.166)	0.307(0.190)	1.954(0.357)	0.194	0.110
MSLOM(X5678)	-1.645(0.107)	0.279(0.184)	0.665(0.235)	2.693(0.480)	0.933	0.530
MSLOM(X123478)	-1.557(0.111)	0.159(0.185)	0.267(0.192)	2.055(0.412)	0.295	0.168
MSLOM(all)	-1.658(0.113)	0.249(0.201)	0.479(0.226)	2.645(0.523)	0.885	0.503
DR	-1.929(0.058)	0.235(0.094)	0.611(0.119)	2.901(0.233)	0.261	0.099

Marginal: $RERI_{OR}^{true} = 1.760$, $RERI_{RR}^{true} = 0.906$; Conditional: $RERI_{OR}^{true} = 2.64$

$\beta_0 = -1$**: prevalence** ≈ 0.6

Model	β_0	β_1	β_2	β_3	Abs. Bias	Bias(%)
Default LOM	-0.679(0.073)	0.228(0.131)	0.200(0.129)	1.896(0.289)	0.215	0.128
CLOM(X5X6)	-0.825(0.080)	0.302(0.150)	0.358(0.157)	2.546(0.401)	0.094	0.036
CLOM(X7X8)	-0.701(0.078)	0.238(0.138)	0.158(0.131)	1.988(0.316)	0.652	0.247
CLOM(X5678)	-0.879(0.085)	0.344(0.163)	0.332(0.163)	2.890(0.477)	0.250	0.095
MSLOM(X7X8)	-0.699(0.079)	0.287(0.143)	0.223(0.137)	1.797(0.320)	0.116	0.069
MSLOM(X1278)	-0.736(0.083)	0.404(0.178)	0.274(0.157)	1.613(0.381)	0.068	0.040
MSLOM(X3478)	-0.646(0.083)	0.189(0.138)	0.208(0.144)	1.817(0.331)	0.136	0.081
MSLOM(X5678)	-0.799(0.080)	0.456(0.163)	0.431(0.162)	2.404(0.418)	0.723	0.430
MSLOM(X123478)	-0.687(0.086)	0.307(0.171)	0.277(0.165)	1.567(0.376)	0.114	0.068
MSLOM(all)	-0.790(0.087)	0.502(0.201)	0.530(0.199)	2.039(0.494)	0.358	0.213
DR	-0.888(0.048)	0.365(0.088)	0.362(0.088)	2.639(0.195)	0.001	0.000

Marginal: $RERI_{OR}^{true} = 1.681$, $RERI_{RR}^{true} = 0.521$; Conditional: $RERI_{OR}^{true} = 2.64$

Using both control and case

$\beta_0 = -6$**: prevalence** ≈ 0.01

Model	β_0	β_1	β_2	β_3	Abs. Bias	Bias(%)
Default LOM	-5.119(0.449)	-0.040(0.646)	1.210(1.238)	1.388(1.273)	1.254	0.475
CLOM(X5X6)	-5.589(0.482)	0.001(0.676)	1.485(1.401)	1.174(1.358)	1.466	0.555
CLOM(X7X8)	-5.123(0.457)	-0.154(0.575)	0.842(1.049)	0.982(1.026)	1.658	0.628
CLOM(X5678)	-5.611(0.491)	-0.098(0.614)	1.137(1.222)	0.781(1.144)	1.859	0.704
MSLOM(X7X8)	-5.262(0.466)	0.177(0.809)	1.455(1.411)	0.692(1.362)	1.950	0.738
MSLOM(X1278)	-5.198(0.485)	-0.049(0.667)	1.065(1.248)	1.081(1.267)	1.561	0.591
MSLOM(X3478)	-5.206(0.485)	0.061(0.751)	1.553(1.563)	0.536(1.434)	2.106	0.797
MSLOM(X5678)	-5.302(0.462)	0.154(0.790)	1.644(1.510)	0.791(1.446)	1.851	0.701
MSLOM(X123478)	-5.096(0.526)	-0.172(0.614)	0.951(1.258)	1.149(1.308)	1.493	0.565
MSLOM(all)	-5.134(0.524)	-0.195(0.595)	1.109(1.351)	1.263(1.420)	1.379	0.522
DR	-6.151(0.293)	0.367(0.482)	2.148(0.980)	0.326(0.852)	2.314	0.877

Marginal: $RERI_{OR}^{true} = 2.642$, $RERI_{RR}^{true} = 2.572$; Conditional: $RERI_{OR}^{true} = 2.64$

$\beta_0 = -4.5$**: prevalence** ≈ 0.05

Model	β_0	β_1	β_2	β_3	Abs. Bias	Bias(%)
Default LOM	-3.881(0.245)	0.060(0.379)	0.822(0.580)	2.301(0.792)	0.018	0.008
CLOM(X5X6)	-4.295(0.263)	0.104(0.400)	1.057(0.665)	2.351(0.876)	0.289	0.109
CLOM(X7X8)	-3.936(0.252)	-0.081(0.334)	0.480(0.482)	1.682(0.612)	0.958	0.363
CLOM(X5678)	-4.390(0.275)	-0.021(0.361)	0.730(0.573)	1.724(0.705)	0.916	0.347
MSLOM(X7X8)	-3.682(0.276)	-0.101(0.343)	0.443(0.496)	1.636(0.599)	0.683	0.295
MSLOM(X1278)	-3.811(0.281)	0.014(0.415)	0.358(0.486)	2.302(0.887)	0.017	0.007
MSLOM(X3478)	-3.471(0.327)	-0.230(0.327)	0.207(0.474)	1.672(0.575)	0.647	0.279
MSLOM(X5678)	-3.714(0.274)	-0.106(0.339)	0.540(0.527)	1.746(0.638)	0.573	0.247
MSLOM(X123478)	-3.660(0.293)	-0.067(0.405)	0.174(0.434)	2.311(0.846)	0.008	0.003
MSLOM(all)	-3.695(0.289)	-0.073(0.400)	0.276(0.468)	2.463(0.903)	0.144	0.062
DR	-4.435(0.138)	-0.015(0.174)	0.734(0.279)	1.776(0.358)	0.864	0.327

Marginal: $RERI_{OR}^{true} = 2.319$, $RERI_{RR}^{true} = 2.091$; Conditional: $RERI_{OR}^{true} = 2.64$

$\beta_0 = -3.7$**: prevalence** ≈ 0.1

Model	β_0	β_1	β_2	β_3	Abs. Bias	Bias(%)
Default LOM	-3.107(0.170)	-0.070(0.239)	0.861(0.414)	1.634(0.497)	0.489	0.230
CLOM(X5X6)	-3.529(0.187)	-0.035(0.254)	1.145(0.491)	1.713(0.580)	0.927	0.351
CLOM(X7X8)	-3.199(0.178)	-0.139(0.226)	0.640(0.375)	1.379(0.444)	1.261	0.478
CLOM(X5678)	-3.670(0.197)	-0.099(0.243)	0.945(0.461)	1.487(0.541)	1.153	0.437
MSLOM(X7X8)	-2.922(0.194)	-0.209(0.217)	0.524(0.368)	1.346(0.415)	0.777	0.366
MSLOM(X1278)	-3.003(0.200)	-0.163(0.244)	0.466(0.374)	1.667(0.521)	0.456	0.215
MSLOM(X3478)	-2.870(0.221)	-0.240(0.226)	0.395(0.374)	1.513(0.432)	0.610	0.287
MSLOM(X5678)	-2.974(0.191)	-0.199(0.218)	0.647(0.395)	1.467(0.453)	0.656	0.309
MSLOM(X123478)	-2.988(0.207)	-0.156(0.259)	0.372(0.358)	1.846(0.547)	0.277	0.130
MSLOM(all)	-3.033(0.204)	-0.157(0.257)	0.484(0.384)	1.997(0.592)	0.126	0.059
DR	-3.709(0.100)	-0.140(0.113)	0.918(0.223)	1.594(0.269)	1.046	0.396

Marginal: $RERI_{OR}^{true} = 2.123$, $RERI_{RR}^{true} = 1.735$; Conditional: $RERI_{OR}^{true} = 2.64$

$\beta_0 = -3$**: prevalence** ≈ 0.2

Model	β_0	β_1	β_2	β_3	Abs. Bias	Bias(%)
Default LOM	-2.480(0.129)	0.199(0.221)	0.700(0.294)	1.443(0.389)	0.508	0.260
CLOM(X5X6)	-2.794(0.140)	0.251(0.237)	0.935(0.347)	1.600(0.460)	1.040	0.394
CLOM(X7X8)	-2.594(0.136)	0.168(0.221)	0.583(0.284)	1.365(0.386)	1.275	0.483
CLOM(X5678)	-2.956(0.149)	0.231(0.242)	0.844(0.345)	1.595(0.478)	1.045	0.396
MSLOM(X7X8)	-2.270(0.154)	-0.015(0.200)	0.348(0.260)	1.260(0.326)	0.691	0.354
MSLOM(X1278)	-2.302(0.155)	-0.077(0.195)	0.244(0.251)	1.605(0.382)	0.346	0.177
MSLOM(X3478)	-2.268(0.164)	-0.032(0.206)	0.346(0.275)	1.366(0.351)	0.585	0.300
MSLOM(X5678)	-2.305(0.153)	-0.007(0.201)	0.435(0.276)	1.359(0.349)	0.592	0.303
MSLOM(X123478)	-2.318(0.159)	-0.055(0.209)	0.253(0.260)	1.664(0.405)	0.287	0.147
MSLOM(all)	-2.346(0.159)	-0.066(0.206)	0.328(0.276)	1.769(0.428)	0.182	0.093
DR	-2.857(0.074)	0.065(0.102)	0.623(0.147)	1.626(0.211)	1.014	0.384

Marginal: $RERI_{OR}^{true} = 1.951$, $RERI_{RR}^{true} = 1.384$; Conditional: $RERI_{OR}^{true} = 2.64$

$\beta_0 = -2$**: prevalence** ≈ 0.4

Model	β_0	β_1	β_2	β_3	Abs. Bias	Bias(%)
Default LOM	-1.558(0.093)	0.193(0.159)	0.405(0.180)	1.731(0.304)	0.029	0.016
CLOM(X5X6)	-1.778(0.101)	0.267(0.178)	0.457(0.197)	2.197(0.384)	0.443	0.168
CLOM(X7X8)	-1.640(0.098)	0.139(0.157)	0.386(0.184)	1.896(0.335)	0.744	0.282
CLOM(X5678)	-1.895(0.108)	0.194(0.175)	0.451(0.205)	2.410(0.433)	0.230	0.087
MSLOM(X7X8)	-1.567(0.111)	0.201(0.175)	0.437(0.203)	1.522(0.319)	0.238	0.135
MSLOM(X1278)	-1.632(0.121)	0.312(0.210)	0.540(0.237)	1.434(0.362)	0.326	0.185
MSLOM(X3478)	-1.512(0.111)	0.160(0.173)	0.395(0.202)	1.439(0.322)	0.321	0.182
MSLOM(X5678)	-1.560(0.111)	0.212(0.177)	0.406(0.199)	1.514(0.317)	0.246	0.140
MSLOM(X123478)	-1.577(0.120)	0.277(0.211)	0.471(0.229)	1.393(0.366)	0.367	0.209
MSLOM(all)	-1.560(0.121)	0.280(0.212)	0.417(0.221)	1.363(0.356)	0.397	0.226
DR	-1.922(0.054)	0.246(0.090)	0.478(0.104)	2.296(0.208)	0.344	0.130

Marginal: $RERI_{OR}^{true} = 1.760$, $RERI_{RR}^{true} = 0.906$; Conditional: $RERI_{OR}^{true} = 2.64$

$\beta_0 = -1$**: prevalence** ≈ 0.6

Model	β_0	β_1	β_2	β_3	Abs. Bias	Bias(%)
Default LOM	-0.908(0.079)	0.362(0.151)	0.357(0.152)	1.924(0.312)	0.243	0.145
CLOM(X5X6)	-1.054(0.085)	0.438(0.171)	0.443(0.172)	2.670(0.422)	0.030	0.011
CLOM(X7X8)	-0.926(0.086)	0.251(0.147)	0.278(0.152)	2.131(0.342)	0.509	0.193
CLOM(X5678)	-1.114(0.094)	0.313(0.168)	0.366(0.177)	3.148(0.505)	0.508	0.192
MSLOM(X7X8)	-0.848(0.092)	0.281(0.155)	0.296(0.158)	1.804(0.324)	0.123	0.073
MSLOM(X1278)	-0.758(0.100)	0.174(0.159)	0.166(0.162)	1.711(0.346)	0.030	0.018
MSLOM(X3478)	-0.841(0.097)	0.236(0.158)	0.277(0.163)	1.866(0.340)	0.185	0.110
MSLOM(X5678)	-0.873(0.092)	0.305(0.158)	0.336(0.162)	1.924(0.342)	0.243	0.145
MSLOM(X123478)	-0.765(0.102)	0.113(0.156)	0.153(0.163)	1.839(0.359)	0.158	0.094
MSLOM(all)	-0.788(0.102)	0.128(0.157)	0.187(0.168)	1.932(0.376)	0.251	0.149
DR	-1.135(0.046)	0.367(0.086)	0.412(0.089)	3.253(0.255)	0.613	0.232

Marginal: $RERI_{OR}^{true} = 1.681$, $RERI_{RR}^{true} = 0.521$; Conditional: $RERI_{OR}^{true} = 2.64$