GLM before matching

> ###########################

> #### logistic univariate

> uni<-glm(outcome\_4~AB\_nose\_infection, data= data\_first\_treatment\_relevant\_0.4, family = binomial)

> summary(uni)

Same with data= data\_first\_treatment

Call:

glm(formula = outcome\_4 ~ AB\_nose\_infection, family = binomial,

data = data\_first\_treatment\_relevant\_0.4)

Deviance Residuals:

Min 1Q Median 3Q Max

-1.8081 0.6587 0.6587 0.6880 0.6880

Coefficients:

Estimate Std. Error z value Pr(>|z|)

(Intercept) 1.32027 0.02283 57.819 < 2e-16 \*\*\*

AB\_nose\_infection1 0.09742 0.03343 2.915 0.00356 \*\*

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

(Dispersion parameter for binomial family taken to be 1)

Null deviance: 22433 on 22219 degrees of freedom

Residual deviance: 22425 on 22218 degrees of freedom

(2172 observations deleted due to missingness)

AIC: 22429

Number of Fisher Scoring iterations: 4

unicov <-glm(

+ as.formula(paste("outcome\_4 ~ AB\_nose\_infection + ", paste(vars\_confounders, collapse="+"),sep="")),

+ family = "binomial",

+ data = data\_first\_treatment\_relevant\_0.4

+ )

> #Error in eval(predvars, data, env) : object 'CRP\_values' not found

> # we might delete 40% NA first

> summary(unicov)

Same with data= data\_first\_treatment

Call:

glm(formula = as.formula(paste("outcome\_4 ~ AB\_nose\_infection + ",

paste(vars\_confounders, collapse = "+"), sep = "")), family = "binomial",

data = data\_first\_treatment)

Deviance Residuals:

Min 1Q Median 3Q Max

-2.3649 0.5482 0.6361 0.7058 1.3703

Coefficients:

Estimate Std. Error z value Pr(>|z|)

(Intercept) 2.076e+00 3.193e-01 6.503 7.89e-11 \*\*\*

AB\_nose\_infection1 6.005e-02 4.282e-02 1.402 0.16083

age -4.303e-03 1.541e-03 -2.793 0.00523 \*\*

nr\_medication -6.239e-03 1.377e-03 -4.531 5.86e-06 \*\*\*

kanker\_morb1 -4.907e-02 8.205e-02 -0.598 0.54982

coronhartz\_morb1 1.442e-01 1.084e-01 1.330 0.18342

alcmisb\_morb1 -1.205e+00 3.280e-01 -3.673 0.00024 \*\*\*

RA\_morb1 1.755e-01 1.432e-01 1.226 0.22016

COPD\_morb1 2.227e-01 9.961e-02 2.235 0.02540 \*

hartritme\_morb1 2.315e-01 1.835e-01 1.261 0.20721

migraine\_morb1 -2.622e-01 1.224e-01 -2.143 0.03213 \*

nr\_prescriptions\_AB -1.127e-02 6.562e-02 -0.172 0.86361

nr\_chron3 -4.601e-02 3.054e-02 -1.506 0.13198

practice\_size 4.573e-04 2.864e-04 1.597 0.11033

chrnek\_morb1 -4.932e-02 9.636e-02 -0.512 0.60880

hartfalen\_morb1 -3.475e-01 1.835e-01 -1.894 0.05825 .

nr\_contacts\_infection 1.314e-02 1.287e-02 1.021 0.30733

nr\_contacts\_resp -8.168e-02 3.955e-02 -2.065 0.03890 \*

postalcode10 -1.818e-01 3.195e-01 -0.569 0.56925

postalcode11 -6.847e-01 3.589e-01 -1.907 0.05646 .

postalcode12 -3.964e-01 3.223e-01 -1.230 0.21874

postalcode13 1.166e+01 5.354e+02 0.022 0.98263

postalcode14 -3.615e-01 3.517e-01 -1.028 0.30398

postalcode15 -2.846e-01 3.549e-01 -0.802 0.42264

postalcode16 -5.566e-01 5.568e-01 -1.000 0.31751

postalcode17 -7.725e-01 3.608e-01 -2.141 0.03228 \*

postalcode18 -5.955e-01 4.060e-01 -1.467 0.14244

postalcode19 -5.252e-01 3.366e-01 -1.560 0.11865

postalcode20 -2.673e-01 3.266e-01 -0.818 0.41320

postalcode21 -6.205e-01 3.530e-01 -1.757 0.07885 .

postalcode22 -7.320e-01 3.427e-01 -2.136 0.03269 \*

postalcode23 3.320e-01 4.224e-01 0.786 0.43186

postalcode24 -2.481e-01 3.288e-01 -0.755 0.45050

postalcode25 -2.961e-01 3.485e-01 -0.850 0.39548

postalcode26 -3.730e-01 3.559e-01 -1.048 0.29459

postalcode27 -3.542e-01 3.825e-01 -0.926 0.35436

postalcode28 1.171e+01 3.786e+02 0.031 0.97532

postalcode29 -3.072e-01 3.766e-01 -0.816 0.41468

postalcode30 -1.839e-01 3.171e-01 -0.580 0.56184

postalcode31 -2.098e-01 3.266e-01 -0.642 0.52065

postalcode32 -4.472e-01 5.030e-01 -0.889 0.37400

postalcode33 -2.568e-01 3.920e-01 -0.655 0.51241

postalcode34 -5.954e-01 3.224e-01 -1.847 0.06476 .

postalcode35 9.045e-02 3.760e-01 0.241 0.80990

postalcode36 2.563e-01 1.117e+00 0.229 0.81850

postalcode37 1.176e+01 2.676e+02 0.044 0.96496

postalcode38 -5.391e-01 3.293e-01 -1.637 0.10164

postalcode39 -5.152e-01 3.417e-01 -1.508 0.13159

postalcode40 -6.891e-01 3.913e-01 -1.761 0.07820 .

postalcode41 -5.879e-01 3.383e-01 -1.738 0.08227 .

postalcode42 -5.459e-01 3.575e-01 -1.527 0.12675

postalcode43 -4.581e-03 4.289e-01 -0.011 0.99148

postalcode46 1.199e+01 3.786e+02 0.032 0.97473

postalcode47 -9.644e-02 6.262e-01 -0.154 0.87761

postalcode50 -1.749e-01 4.940e-01 -0.354 0.72326

postalcode51 1.170e+01 3.785e+02 0.031 0.97533

postalcode52 -5.499e-01 3.769e-01 -1.459 0.14459

postalcode53 -3.570e-01 3.406e-01 -1.048 0.29462

postalcode54 -6.814e-01 3.359e-01 -2.028 0.04252 \*

postalcode55 -1.031e+00 7.708e-01 -1.338 0.18105

postalcode56 -5.450e-01 3.627e-01 -1.503 0.13296

postalcode57 -5.685e-01 3.303e-01 -1.721 0.08522 .

postalcode58 -2.764e-02 3.851e-01 -0.072 0.94279

postalcode59 -7.512e-01 8.910e-01 -0.843 0.39918

postalcode60 -5.303e-01 3.436e-01 -1.543 0.12271

postalcode61 -1.516e-02 6.260e-01 -0.024 0.98068

postalcode62 8.143e-01 7.983e-01 1.020 0.30774

postalcode63 -6.931e-01 1.195e+00 -0.580 0.56191

postalcode64 -4.412e-02 3.741e-01 -0.118 0.90611

postalcode65 -1.143e-01 3.521e-01 -0.325 0.74552

postalcode66 -1.976e-01 3.309e-01 -0.597 0.55036

postalcode67 1.714e-01 6.189e-01 0.277 0.78177

postalcode68 -4.058e-01 4.080e-01 -0.994 0.31998

postalcode69 -5.386e-01 3.572e-01 -1.508 0.13157

postalcode70 -1.532e-01 3.669e-01 -0.417 0.67633

postalcode71 -3.367e-01 3.831e-01 -0.879 0.37939

postalcode72 -1.309e-01 4.391e-01 -0.298 0.76561

postalcode73 -3.748e-01 3.333e-01 -1.124 0.26083

postalcode74 -3.888e-01 3.445e-01 -1.129 0.25904

postalcode75 -7.089e-01 3.424e-01 -2.071 0.03840 \*

postalcode76 1.426e-01 4.181e-01 0.341 0.73305

postalcode77 -3.617e-01 3.851e-01 -0.939 0.34761

postalcode78 -1.887e-01 3.902e-01 -0.484 0.62871

postalcode79 -4.606e-01 3.195e-01 -1.441 0.14949

postalcode80 -7.793e-01 4.233e-01 -1.841 0.06565 .

postalcode81 -5.103e-02 3.902e-01 -0.131 0.89594

postalcode82 -6.815e-01 3.640e-01 -1.872 0.06119 .

postalcode83 -5.092e-01 3.840e-01 -1.326 0.18481

postalcode84 -9.670e-02 3.690e-01 -0.262 0.79329

postalcode85 -2.450e-01 3.704e-01 -0.661 0.50830

postalcode87 1.189e+01 5.354e+02 0.022 0.98228

postalcode88 -5.431e-01 3.676e-01 -1.478 0.13953

postalcode89 -6.374e-01 3.468e-01 -1.838 0.06606 .

postalcode90 -2.541e-01 5.792e-01 -0.439 0.66091

postalcode91 -4.885e-01 3.789e-01 -1.289 0.19731

postalcode92 -4.184e-01 3.321e-01 -1.260 0.20772

postalcode93 -8.694e-01 6.246e-01 -1.392 0.16391

postalcode94 -1.035e-01 4.732e-01 -0.219 0.82686

postalcode95 -1.164e+00 4.989e-01 -2.333 0.01967 \*

postalcode96 -9.457e-02 3.398e-01 -0.278 0.78076

postalcode97 -1.063e-01 3.375e-01 -0.315 0.75287

postalcode98 -6.421e-01 3.867e-01 -1.660 0.09682 .

postalcode99 -7.805e-01 3.749e-01 -2.082 0.03736 \*

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

(Dispersion parameter for binomial family taken to be 1)

Null deviance: 14526 on 14331 degrees of freedom

Residual deviance: 14332 on 14229 degrees of freedom

(10060 observations deleted due to missingness)

AIC: 14538

Number of Fisher Scoring iterations: 12

# %% GLM after matching

> ###########################

> summary(glm(outcome\_4 ~ AB\_nose\_infection, family = "binomial", data = data\_Match))

Call:

glm(formula = outcome\_4 ~ AB\_nose\_infection, family = "binomial",

data = data\_Match)

Deviance Residuals:

Min 1Q Median 3Q Max

-1.7936 0.6684 0.6684 0.6782 0.6782

Coefficients:

Estimate Std. Error z value Pr(>|z|)

(Intercept) 1.35253 0.03039 44.510 <2e-16 \*\*\*

AB\_nose\_infection1 0.03263 0.04318 0.756 0.45

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

(Dispersion parameter for binomial family taken to be 1)

Null deviance: 13382 on 13267 degrees of freedom

Residual deviance: 13381 on 13266 degrees of freedom

AIC: 13385

Number of Fisher Scoring iterations: 4

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Confounders from AIC omit.na

unicov <-glm(

+ as.formula(paste("outcome\_4 ~ AB\_nose\_infection + ", paste(vars\_confounders, collapse="+"),sep="")),

+ family = "binomial",

+ data = data\_first\_treatment\_relevant\_0.4

+ )

> summary(unicov)

Call:

glm(formula = as.formula(paste("outcome\_4 ~ AB\_nose\_infection + ",

paste(vars\_confounders, collapse = "+"), sep = "")), family = "binomial",

data = data\_first\_treatment\_relevant\_0.4)

Deviance Residuals:

Min 1Q Median 3Q Max

-2.3213 0.5466 0.6366 0.7054 1.4188

Coefficients:

Estimate Std. Error z value Pr(>|z|)

(Intercept) 2.153306 0.311991 6.902 5.13e-12 \*\*\*

AB\_nose\_infection1 0.063306 0.042763 1.480 0.13877

age -0.003578 0.001483 -2.412 0.01588 \*

sex2 -0.102838 0.045366 -2.267 0.02340 \*

nr\_medication -0.006388 0.001374 -4.649 3.34e-06 \*\*\*

COPD\_morb1 0.211856 0.094126 2.251 0.02440 \*

migraine\_morb1 -0.291155 0.118773 -2.451 0.01423 \*

hartfalen\_morb1 -0.292024 0.177001 -1.650 0.09898 .

nr\_contacts\_resp -0.061940 0.034861 -1.777 0.07561 .

osteop\_morb1 -0.161097 0.109612 -1.470 0.14164

poor\_immune\_response1 -0.134655 0.054412 -2.475 0.01333 \*

alcmisb\_morb1 -1.173848 0.328998 -3.568 0.00036 \*\*\*

postalcode10 -0.150882 0.318472 -0.474 0.63567

postalcode11 -0.723247 0.358803 -2.016 0.04383 \*

postalcode12 -0.419589 0.322300 -1.302 0.19296

postalcode13 11.555455 535.411256 0.022 0.98278

postalcode14 -0.378849 0.351698 -1.077 0.28139

postalcode15 -0.254889 0.353438 -0.721 0.47080

postalcode16 -0.545029 0.557796 -0.977 0.32851

postalcode17 -0.792096 0.360918 -2.195 0.02819 \*

postalcode18 -0.609067 0.405487 -1.502 0.13308

postalcode19 -0.509815 0.336017 -1.517 0.12921

postalcode20 -0.264684 0.326328 -0.811 0.41731

postalcode21 -0.654492 0.352922 -1.854 0.06367 .

postalcode22 -0.759373 0.342589 -2.217 0.02665 \*

postalcode23 0.348483 0.422358 0.825 0.40932

postalcode24 -0.301777 0.327695 -0.921 0.35710

postalcode25 -0.259514 0.347583 -0.747 0.45529

postalcode26 -0.352087 0.355165 -0.991 0.32152

postalcode27 -0.389390 0.382349 -1.018 0.30848

postalcode28 11.643578 378.592463 0.031 0.97546

postalcode29 -0.293230 0.375895 -0.780 0.43534

postalcode30 -0.205911 0.317091 -0.649 0.51610

postalcode31 -0.253846 0.326310 -0.778 0.43661

postalcode32 -0.524207 0.502778 -1.043 0.29712

postalcode33 -0.260250 0.391776 -0.664 0.50651

postalcode34 -0.607180 0.322435 -1.883 0.05969 .

postalcode35 0.045137 0.375222 0.120 0.90425

postalcode36 0.223444 1.118737 0.200 0.84169

postalcode37 11.666659 267.533143 0.044 0.96522

postalcode38 -0.561307 0.329465 -1.704 0.08844 .

postalcode39 -0.518172 0.341673 -1.517 0.12937

postalcode40 -0.670754 0.391244 -1.714 0.08645 .

postalcode41 -0.593038 0.338300 -1.753 0.07960 .

postalcode42 -0.564593 0.357554 -1.579 0.11433

postalcode43 -0.043086 0.428544 -0.101 0.91992

postalcode46 11.896084 378.592992 0.031 0.97493

postalcode47 -0.133593 0.626283 -0.213 0.83108

postalcode50 -0.229338 0.493763 -0.464 0.64231

postalcode51 11.673975 377.997196 0.031 0.97536

postalcode52 -0.537655 0.376640 -1.428 0.15343

postalcode53 -0.342736 0.340227 -1.007 0.31375

postalcode54 -0.630016 0.333947 -1.887 0.05922 .

postalcode55 -0.999635 0.770052 -1.298 0.19424

postalcode56 -0.493036 0.361058 -1.366 0.17209

postalcode57 -0.563926 0.330175 -1.708 0.08764 .

postalcode58 -0.019651 0.384919 -0.051 0.95928

postalcode59 -0.762178 0.890694 -0.856 0.39216

postalcode60 -0.520102 0.343099 -1.516 0.12955

postalcode61 -0.026497 0.626271 -0.042 0.96625

postalcode62 0.705460 0.797707 0.884 0.37650

postalcode63 -0.652320 1.195916 -0.545 0.58544

postalcode64 -0.012265 0.372828 -0.033 0.97376

postalcode65 -0.149145 0.351978 -0.424 0.67176

postalcode66 -0.174919 0.330136 -0.530 0.59622

postalcode67 0.160240 0.618659 0.259 0.79563

postalcode68 -0.407921 0.408033 -1.000 0.31744

postalcode69 -0.542031 0.357180 -1.518 0.12913

postalcode70 -0.164610 0.366957 -0.449 0.65373

postalcode71 -0.368804 0.382829 -0.963 0.33536

postalcode72 -0.188044 0.438613 -0.429 0.66812

postalcode73 -0.390745 0.333416 -1.172 0.24122

postalcode74 -0.430013 0.344232 -1.249 0.21159

postalcode75 -0.737695 0.342355 -2.155 0.03118 \*

postalcode76 0.100128 0.417919 0.240 0.81065

postalcode77 -0.386781 0.385126 -1.004 0.31524

postalcode78 -0.200588 0.390129 -0.514 0.60714

postalcode79 -0.418930 0.317959 -1.318 0.18765

postalcode80 -0.748084 0.422267 -1.772 0.07646 .

postalcode81 -0.002097 0.388082 -0.005 0.99569

postalcode82 -0.652769 0.363103 -1.798 0.07222 .

postalcode83 -0.515269 0.384025 -1.342 0.17967

postalcode84 -0.112156 0.368841 -0.304 0.76107

postalcode85 -0.289344 0.370345 -0.781 0.43464

postalcode87 11.841768 535.411254 0.022 0.98235

postalcode88 -0.562486 0.367674 -1.530 0.12605

postalcode89 -0.609178 0.345973 -1.761 0.07828 .

postalcode90 -0.302915 0.579645 -0.523 0.60126

postalcode91 -0.555984 0.376716 -1.476 0.13998

postalcode92 -0.456622 0.332080 -1.375 0.16912

postalcode93 -0.957429 0.625636 -1.530 0.12594

postalcode94 -0.106261 0.473096 -0.225 0.82228

postalcode95 -1.204803 0.498568 -2.417 0.01567 \*

postalcode96 -0.060498 0.338751 -0.179 0.85826

postalcode97 -0.138628 0.337139 -0.411 0.68093

postalcode98 -0.615108 0.385814 -1.594 0.11087

postalcode99 -0.786951 0.374792 -2.100 0.03576 \*

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

(Dispersion parameter for binomial family taken to be 1)

Null deviance: 14526 on 14331 degrees of freedom

Residual deviance: 14328 on 14235 degrees of freedom

(10060 observations deleted due to missingness)

AIC: 14522

Number of Fisher Scoring iterations: 12

multi\_type <-glm(

+ as.formula(paste("outcome\_4 ~ type\_AB\_nose + ", paste(vars\_confounders, collapse="+"),sep="")),

+ family = "binomial", data= data\_first\_treatment\_relevant\_0.4)

> summary(multi\_type)

Call:

glm(formula = as.formula(paste("outcome\_4 ~ type\_AB\_nose + ",

paste(vars\_confounders, collapse = "+"), sep = "")), family = "binomial",

data = data\_first\_treatment\_relevant\_0.4)

Deviance Residuals:

Min 1Q Median 3Q Max

-2.2921 0.5413 0.6348 0.7067 1.4199

Coefficients:

Estimate Std. Error z value Pr(>|z|)

(Intercept) 2.160170 0.312088 6.922 4.46e-12 \*\*\*

type\_AB\_nose1 0.013867 0.070658 0.196 0.844406

type\_AB\_nose2 -0.327934 0.128392 -2.554 0.010644 \*

type\_AB\_nose3 0.254964 0.109453 2.329 0.019835 \*

type\_AB\_nose4 0.092862 0.049880 1.862 0.062647 .

type\_AB\_nose5 -0.074304 0.259258 -0.287 0.774418

age -0.003636 0.001485 -2.449 0.014319 \*

sex2 -0.106656 0.045408 -2.349 0.018831 \*

nr\_medication -0.006435 0.001375 -4.679 2.88e-06 \*\*\*

COPD\_morb1 0.218817 0.094196 2.323 0.020180 \*

migraine\_morb1 -0.286720 0.118830 -2.413 0.015828 \*

hartfalen\_morb1 -0.290805 0.177029 -1.643 0.100444

nr\_contacts\_resp -0.060140 0.034916 -1.722 0.084994 .

osteop\_morb1 -0.160603 0.109696 -1.464 0.143174

poor\_immune\_response1 -0.136675 0.054454 -2.510 0.012076 \*

alcmisb\_morb1 -1.177732 0.329062 -3.579 0.000345 \*\*\*

postalcode10 -0.157782 0.318575 -0.495 0.620406

postalcode11 -0.736114 0.358951 -2.051 0.040292 \*

postalcode12 -0.428304 0.322430 -1.328 0.184058

postalcode13 11.547987 535.411256 0.022 0.982792

postalcode14 -0.383147 0.351945 -1.089 0.276306

postalcode15 -0.231734 0.353767 -0.655 0.512438

postalcode16 -0.515002 0.558257 -0.923 0.356259

postalcode17 -0.785005 0.361108 -2.174 0.029714 \*

postalcode18 -0.619048 0.405590 -1.526 0.126938

postalcode19 -0.500432 0.336157 -1.489 0.136570

postalcode20 -0.277436 0.326532 -0.850 0.395522

postalcode21 -0.661326 0.353219 -1.872 0.061168 .

postalcode22 -0.761334 0.342745 -2.221 0.026332 \*

postalcode23 0.347460 0.422676 0.822 0.411049

postalcode24 -0.316197 0.327795 -0.965 0.334737

postalcode25 -0.270356 0.347715 -0.778 0.436850

postalcode26 -0.357550 0.355318 -1.006 0.314280

postalcode27 -0.382057 0.382639 -0.998 0.318047

postalcode28 11.661160 378.573818 0.031 0.975427

postalcode29 -0.296112 0.376159 -0.787 0.431165

postalcode30 -0.221040 0.317281 -0.697 0.486010

postalcode31 -0.247397 0.326416 -0.758 0.448499

postalcode32 -0.535633 0.503280 -1.064 0.287200

postalcode33 -0.270191 0.391891 -0.689 0.490536

postalcode34 -0.608133 0.322609 -1.885 0.059424 .

postalcode35 0.036649 0.375348 0.098 0.922217

postalcode36 0.282667 1.116203 0.253 0.800083

postalcode37 11.637917 267.495304 0.044 0.965297

postalcode38 -0.563356 0.329594 -1.709 0.087406 .

postalcode39 -0.515661 0.341753 -1.509 0.131332

postalcode40 -0.679698 0.391452 -1.736 0.082502 .

postalcode41 -0.600305 0.338385 -1.774 0.076059 .

postalcode42 -0.560674 0.357673 -1.568 0.116984

postalcode43 -0.017688 0.428964 -0.041 0.967109

postalcode46 11.891804 378.592992 0.031 0.974942

postalcode47 -0.135441 0.626451 -0.216 0.828829

postalcode50 -0.211739 0.494099 -0.429 0.668261

postalcode51 11.695570 377.692443 0.031 0.975297

postalcode52 -0.556888 0.376805 -1.478 0.139429

postalcode53 -0.354220 0.340375 -1.041 0.298026

postalcode54 -0.630716 0.334051 -1.888 0.059015 .

postalcode55 -0.987197 0.770383 -1.281 0.200040

postalcode56 -0.506572 0.361192 -1.403 0.160766

postalcode57 -0.560086 0.330269 -1.696 0.089914 .

postalcode58 -0.037485 0.385041 -0.097 0.922445

postalcode59 -0.767100 0.890603 -0.861 0.389058

postalcode60 -0.482152 0.343446 -1.404 0.160359

postalcode61 -0.045407 0.626451 -0.072 0.942218

postalcode62 0.674099 0.797847 0.845 0.398168

postalcode63 -0.673213 1.196176 -0.563 0.573568

postalcode64 -0.029700 0.372965 -0.080 0.936529

postalcode65 -0.157964 0.352080 -0.449 0.653677

postalcode66 -0.173775 0.330242 -0.526 0.598745

postalcode67 0.153831 0.618762 0.249 0.803661

postalcode68 -0.414150 0.408135 -1.015 0.310231

postalcode69 -0.545402 0.357321 -1.526 0.126920

postalcode70 -0.171692 0.367092 -0.468 0.639994

postalcode71 -0.339081 0.383217 -0.885 0.376250

postalcode72 -0.179375 0.438969 -0.409 0.682814

postalcode73 -0.387816 0.333542 -1.163 0.244943

postalcode74 -0.440094 0.344406 -1.278 0.201308

postalcode75 -0.744174 0.342505 -2.173 0.029800 \*

postalcode76 0.109500 0.418211 0.262 0.793453

postalcode77 -0.397852 0.385294 -1.033 0.301795

postalcode78 -0.189972 0.390594 -0.486 0.626708

postalcode79 -0.420522 0.318071 -1.322 0.186135

postalcode80 -0.742185 0.422627 -1.756 0.079067 .

postalcode81 -0.015758 0.388211 -0.041 0.967621

postalcode82 -0.655427 0.363239 -1.804 0.071169 .

postalcode83 -0.533618 0.384166 -1.389 0.164824

postalcode84 -0.136851 0.369230 -0.371 0.710907

postalcode85 -0.337501 0.371006 -0.910 0.362984

postalcode87 11.839840 535.411254 0.022 0.982357

postalcode88 -0.565743 0.367794 -1.538 0.123998

postalcode89 -0.606839 0.346089 -1.753 0.079530 .

postalcode90 -0.266237 0.580298 -0.459 0.646382

postalcode91 -0.548970 0.377204 -1.455 0.145567

postalcode92 -0.442654 0.332416 -1.332 0.182984

postalcode93 -0.978949 0.625923 -1.564 0.117816

postalcode94 -0.122353 0.473269 -0.259 0.795999

postalcode95 -1.220880 0.498850 -2.447 0.014390 \*

postalcode96 -0.066004 0.338892 -0.195 0.845577

postalcode97 -0.148530 0.337207 -0.440 0.659596

postalcode98 -0.626201 0.386123 -1.622 0.104853

postalcode99 -0.793094 0.375142 -2.114 0.034506 \*

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

(Dispersion parameter for binomial family taken to be 1)

Null deviance: 14526 on 14331 degrees of freedom

Residual deviance: 14314 on 14231 degrees of freedom

(10060 observations deleted due to missingness)

AIC: 14516

Number of Fisher Scoring iterations: 12

%% GLM after matching

uni\_match <- glm(outcome\_4 ~ AB\_nose\_infection, family = "binomial", data = data\_Match)

> summary(uni\_match)

Call:

glm(formula = outcome\_4 ~ AB\_nose\_infection, family = "binomial",

data = data\_Match)

Deviance Residuals:

Min 1Q Median 3Q Max

-1.7936 0.6684 0.6684 0.6789 0.6789

Coefficients:

Estimate Std. Error z value Pr(>|z|)

(Intercept) 1.35037 0.04076 33.132 <2e-16 \*\*\*

AB\_nose\_infection1 0.03480 0.05102 0.682 0.495

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

(Dispersion parameter for binomial family taken to be 1)

Null deviance: 10388 on 10316 degrees of freedom

Residual deviance: 10387 on 10315 degrees of freedom

AIC: 10391

Number of Fisher Scoring iterations: 4

glm\_cto <- svyglm(outcome\_4 ~ type\_AB\_nose, design = design.mnps,family=quasibinomial)

> summary(glm\_cto)

Call:

svyglm(formula = outcome\_4 ~ type\_AB\_nose, design = design.mnps,

family = quasibinomial)

Survey design:

svydesign(ids = ~1, weights = ~w, data = data\_confounders\_to)

Coefficients:

Estimate Std. Error t value Pr(>|t|)

(Intercept) 1.311179 0.028866 45.423 <2e-16 \*\*\*

type\_AB\_nose1 0.008699 0.076469 0.114 0.9094

type\_AB\_nose2 -0.272148 0.157960 -1.723 0.0849 .

type\_AB\_nose3 0.209120 0.117778 1.776 0.0758 .

type\_AB\_nose4 0.097348 0.050559 1.925 0.0542 .

type\_AB\_nose5 0.103731 0.296147 0.350 0.7261

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

(Dispersion parameter for quasibinomial family taken to be 1.00007)

Number of Fisher Scoring iterations: 6

cbind( exp(coef(glm\_cto)), exp(summary(glm\_cto)$coefficients[,1] - 1.96\*summary(glm\_cto)$coefficients[,2]), exp(summary(glm\_cto)$coefficients[,1] + 1.96\*summary(glm\_cto)$coefficients[,2]) )

[,1] [,2] [,3]

(Intercept) 3.7105441 3.5064396 3.926529

type\_AB\_nose1 1.0087370 0.8683336 1.171843

type\_AB\_nose2 0.7617412 0.5589199 1.038162

type\_AB\_nose3 1.2325935 0.9785107 1.552652

type\_AB\_nose4 1.1022437 0.9982545 1.217066

type\_AB\_nose5 1.1093022 0.6208186 1.982143