Simulated examples for the survival ensemble methods

Select data type

ELSA_Diabetes_Study2 ▾

Time point for event prediction:

10

Random seed for calibration and validation

42

K_Outer loop CV (for validation)

3

K_ inner CV folds (model tuning)

3

Simulated data: random seed (generation):

4242

Sample size:

150

Observation time

5

Expected event prevalence by study end

0.5

Expected drop out rate

0.3

Custom data: path to data file

~/Desktop/Study_KCL/PhD P

Predictors to use in the model

"baseline_age_", "genderdun

Time variable name

time

Event indicator variable name

event

Sample statistics   CoxPH   SRF   Ens1: CoxPH->SRF   Ens2: CoxPH in clusters

Ens3: extended CoxPH   Summary   Conclusions

Internally cross-validated results:

Show 25 ∨ entries   Search:

	AUCROC	BS	BS_scaled	C_score	Calib_slope	Calib_alpha	T
test	0.7094	0.0861	-0.0074	0.683	0.3716	0.0455	10
train	0.8437	0.068	0.2058	0.8148	1.0203	0.0403	10

Showing 1 to 2 of 2 entries   Previous   1   Next

Internally cross-validated Test results for each CV fold:
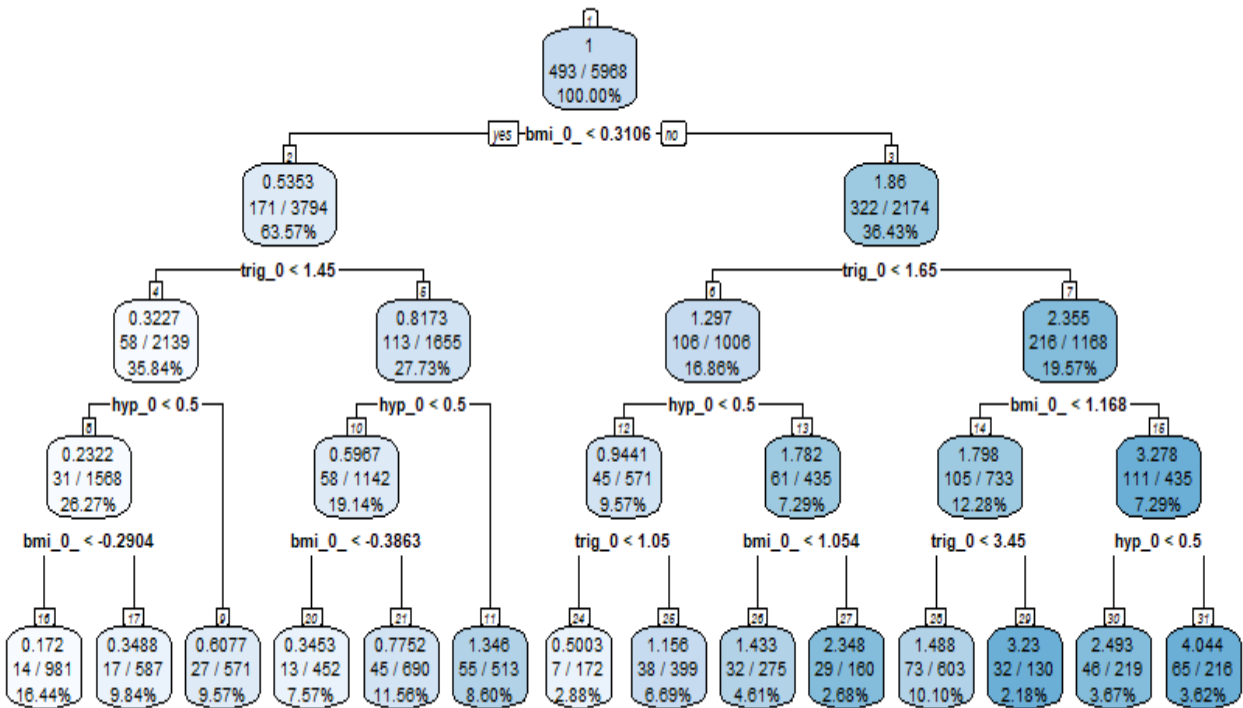
Show 25 ∨ entries   Search:

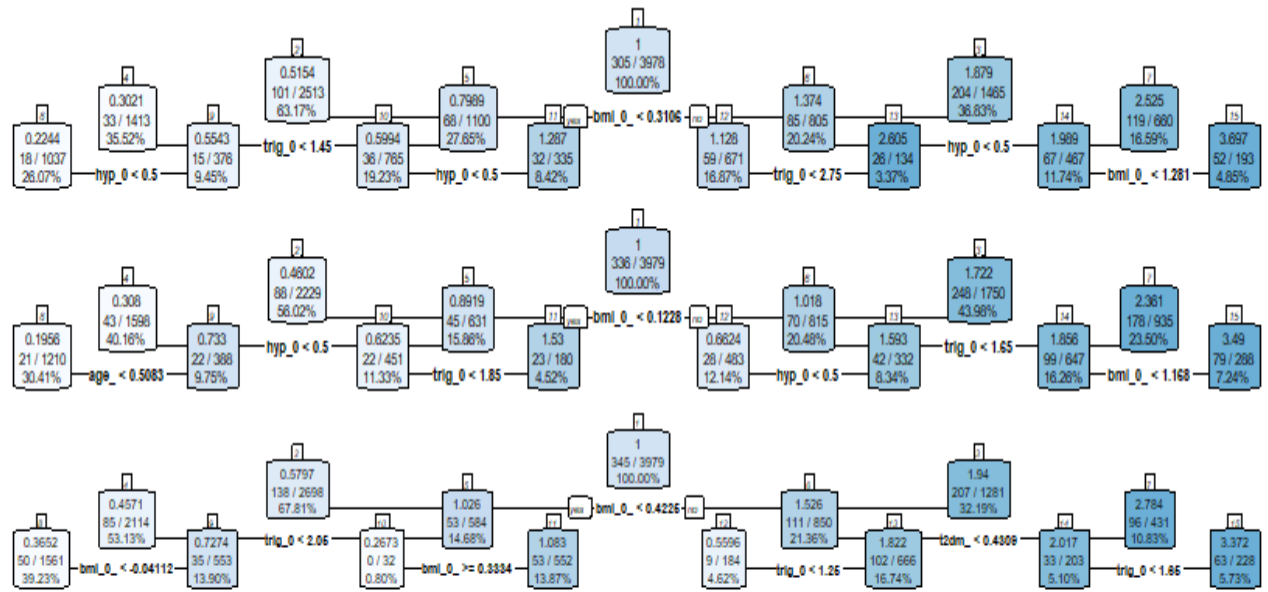|	AUCROC	BS	BS_scaled	C_score	Calib_slope	Calib_alpha	T
test.1	0.7057	0.0941	0.0186	0.6762	0.4086	0.0776	10
test.2	0.7001	0.0868	-0.0599	0.6731	0.3609	0.0292	10
test.3	0.7222	0.0775	0.019	0.6995	0.3453	0.0296	10

Showing 1 to 3 of 3 entries   Previous   1   Next

```
[[1]]
Call:
coxph(formula = as.formula(paste("Surv(df_train$time, df_train$event) ~",
    paste(predict.factors, collapse = "+"))), data = df_train,
    x = TRUE)

                      coef exp(coef)  se(coef)       z
sz20_            -0.008053  0.991980  0.122374  -0.066
pc1_              0.097947  1.102905  0.118013   0.830
pc2_             -0.032187  0.968325  0.121585  -0.265
pc3_              0.118377  1.125668  0.133055   0.890
pc4_             -0.367736  0.692300  0.124556  -2.952
age_              0.111906  1.118408  0.157924   0.709
sex              -0.302930  0.738651  0.283025  -1.070
bmi_0_           -0.207931  0.812263  0.512554  -0.406
hyp_0             0.366644  1.442885  0.241810   1.516
cvd_0             0.364959  1.440456  0.343885   1.061
B_dep_0           0.223598  1.250569  0.352808   0.634
trig_0            0.087144  1.091053  0.266859   0.327
baseline_hdl     -0.151595  0.859336  0.456105  -0.332
stroke_0         -0.804855  0.447153  1.029423  -0.782
B_smokstatus_0    0.483367  1.621525  0.313213   1.543
exercise_light   -0.986854  0.372748  0.738864  -1.336
exercise_vig      0.144168  1.155079  0.271139   0.532
EduLevel_low      0.376750  1.457540  0.405381   0.929
EduLevel_med     -0.162636  0.849901  0.390869  -0.416
wealth_med       -0.010185  0.989867  0.318103  -0.032
wealth_low        0.265036  1.303478  0.328702   0.806
t2dm_             0.483269  1.621367  0.130849   3.693
                        p
sz20_            0.947533
pc1_             0.406556
pc2_             0.791216
pc3_             0.373638
pc4_             0.003153
age_             0.478568
sex              0.284470
bmi_0_           0.684981
hyp_0            0.129455
cvd_0            0.288561
B_dep_0          0.526232
trig_0           0.744006
baseline_hdl     0.739611
stroke_0         0.434302
B_smokstatus_0   0.122770
exercise_light   0.181668
exercise_vig     0.594924
EduLevel_low     0.352697
EduLevel_med     0.677346
wealth_med       0.974458
wealth_low       0.420064
t2dm_            0.000221

Likelihood ratio test=42.16  on 22 df, p=0.005983
n= 603, number of events= 73
```

```
[[2]]
Call:
coxph(formula = as.formula(paste("Surv(df_train$time, df_train$event) ~",
    paste(predict.factors, collapse = "+"))), data = df_train,
    x = TRUE)
```

	coef	exp(coef)	se(coef)	z
sz20_	-0.11744	0.88920	0.18543	-0.633
pc1_	0.09317	1.09765	0.19407	0.480
pc2_	-0.15839	0.85351	0.19657	-0.806
pc3_	0.01636	1.01650	0.19478	0.084
pc4_	0.02574	1.02608	0.17936	0.144
age_	0.13261	1.14181	0.21201	0.625
sex	-0.84105	0.43126	0.47910	-1.755
bmi_0_	-0.15453	0.85682	0.93985	-0.164
hyp_0	0.00000	1.00000	0.00000	NaN
cvd_0	0.14997	1.16180	0.45835	0.327
B_dep_0	0.47221	1.60354	0.51915	0.910
trig_0	-0.76505	0.46531	0.69015	-1.109
baseline_hdl	0.98531	2.67863	0.68584	1.437
stroke_0	0.70960	2.03317	0.56656	1.252
B_smokstatus_0	-0.48746	0.61419	0.70237	-0.694
exercise_light	0.29509	1.34325	0.75419	0.391
exercise_vig	-0.77803	0.45931	0.53698	-1.449
EduLevel_low	-0.29657	0.74336	0.87444	-0.339
EduLevel_med	0.09916	1.10424	0.79509	0.125
wealth_med	-0.24342	0.78394	0.53938	-0.451
wealth_low	0.26183	1.29931	0.53120	0.493
t2dm_	0.62546	1.86911	0.20492	3.052

	p
sz20_	0.52654
pc1_	0.63118
pc2_	0.42037
pc3_	0.93306
pc4_	0.88588
age_	0.53165
sex	0.07918
bmi_0_	0.86940
hyp_0	NaN
cvd_0	0.74352
B_dep_0	0.36304
trig_0	0.26763
baseline_hdl	0.15082
stroke_0	0.21040
B_smokstatus_0	0.48767
exercise_light	0.69560
exercise_vig	0.14736
EduLevel_low	0.73449
EduLevel_med	0.90075
wealth_med	0.65178
wealth_low	0.62208
t2dm_	0.00227

```
Likelihood ratio test=25.23  on 22 df, p=0.2863
n= 275, number of events= 32
```

```
[[3]]
Call:
coxph(formula = as.formula(paste("Surv(df_train$time, df_train$event) ~",
    paste(predict.factors, collapse = "+"))), data = df_train,
    x = TRUE)
```

	coef	exp(coef)	se(coef)	z
sz20_	9.677e-01	2.632e+00	4.821e-01	2.007
pc1_	1.688e-01	1.184e+00	2.795e-01	0.604
pc2_	-1.880e-01	8.287e-01	3.353e-01	-0.561
pc3_	-1.400e-01	8.693e-01	2.575e-01	-0.544
pc4_	2.798e-01	1.323e+00	2.689e-01	1.041
age_	1.847e-02	1.019e+00	3.660e-01	0.050
sex	-3.625e-01	6.959e-01	6.486e-01	-0.559
bmi_0_	-1.066e+00	3.445e-01	8.482e-01	-1.256
hyp_0	0.000e+00	1.000e+00	0.000e+00	NaN
cvd_0	-6.725e-01	5.104e-01	1.120e+00	-0.600
B_dep_0	7.457e-01	2.108e+00	7.557e-01	0.987
trig_0	8.488e-02	1.089e+00	3.038e-01	0.279
baseline_hdl	-2.264e+00	1.040e-01	1.155e+00	-1.960
stroke_0	1.772e+00	5.885e+00	1.304e+00	1.359
B_smokstatus_0	-1.053e+00	3.491e-01	8.479e-01	-1.241
exercise_light	1.462e+00	4.316e+00	9.435e-01	1.550
exercise_vig	9.117e-01	2.488e+00	7.060e-01	1.291
EduLevel_low	1.879e+01	1.441e+08	5.651e+03	0.003
EduLevel_med	1.818e+01	7.837e+07	5.651e+03	0.003
wealth_med	1.271e-01	1.135e+00	9.222e-01	0.138
wealth_low	6.426e-01	1.901e+00	9.065e-01	0.709
t2dm_	1.852e-01	1.203e+00	3.145e-01	0.589

	p
sz20_	0.0447
pc1_	0.5459
pc2_	0.5751
pc3_	0.5865
pc4_	0.2980
age_	0.9598
sex	0.5762
bmi_0_	0.2090
hyp_0	NaN
cvd_0	0.5483
B_dep_0	0.3238
trig_0	0.7799
baseline_hdl	0.0500
stroke_0	0.1741
B_smokstatus_0	0.2145
exercise_light	0.1212
exercise_vig	0.1966
EduLevel_low	0.9973
EduLevel_med	0.9974
wealth_med	0.8904
wealth_low	0.4784
t2dm_	0.5560

```
Likelihood ratio test=28.01  on 22 df, p=0.1753
n= 452, number of events= 13
```

```
[[4]]
Call:
coxph(formula = as.formula(paste("Surv(df_train$time, df_train$event) ~",
    paste(predict.factors, collapse = "+"))), data = df_train,
    x = TRUE)

                      coef  exp(coef)   se(coef)        z
sz20_           -3.789e-04  9.996e-01  2.720e-01   -0.001
pc1_             2.973e-01  1.346e+00  2.703e-01    1.100
pc2_             1.306e-01  1.140e+00  2.767e-01    0.472
pc3_             1.780e-01  1.195e+00  3.111e-01    0.572
pc4_             1.614e-01  1.175e+00  2.338e-01    0.690
age_             8.306e-01  2.295e+00  3.081e-01    2.696
sex             -4.381e-01  6.452e-01  6.313e-01   -0.694
bmi_0_          -4.597e-01  6.315e-01  6.666e-01   -0.690
hyp_0            0.000e+00  1.000e+00  0.000e+00      NaN
cvd_0           -1.852e+01  9.066e-09  7.774e+03   -0.002
B_dep_0         -1.841e+01  1.016e-08  7.210e+03   -0.003
trig_0          -3.149e-01  7.298e-01  1.200e+00   -0.263
baseline_hdl    -9.260e-02  9.116e-01  6.964e-01   -0.133
stroke_0        -1.874e+01  7.295e-09  3.630e+04   -0.001
B_smokstatus_0   1.050e+00  2.857e+00  6.607e-01    1.589
exercise_light  -1.961e+01  3.032e-09  1.403e+04   -0.001
exercise_vig    -9.296e-01  3.947e-01  6.760e-01   -1.375
EduLevel_low    -4.299e-01  6.506e-01  9.714e-01   -0.443
EduLevel_med     1.173e-02  1.012e+00  8.562e-01    0.014
wealth_med      -6.187e-01  5.387e-01  8.392e-01   -0.737
wealth_low       8.242e-01  2.280e+00  6.407e-01    1.286
t2dm_            3.402e-01  1.405e+00  3.003e-01    1.133
                       p
sz20_            0.99889
pc1_             0.27135
pc2_             0.63683
pc3_             0.56713
pc4_             0.49008
age_             0.00702
sex              0.48763
bmi_0_           0.49046
hyp_0                NaN
cvd_0            0.99810
B_dep_0          0.99796
trig_0           0.79293
baseline_hdl     0.89422
stroke_0         0.99959
B_smokstatus_0   0.11205
exercise_light   0.99888
exercise_vig     0.16912
EduLevel_low     0.65812
EduLevel_med     0.98907
wealth_med       0.46098
wealth_low       0.19832
t2dm_            0.25728

Likelihood ratio test=29.83  on 22 df, p=0.1227
n= 981, number of events= 14
```

```
[[5]]
Call:
coxph(formula = as.formula(paste("Surv(df_train$time, df_train$event) ~",
    paste(predict.factors, collapse = "+"))), data = df_train,
    x = TRUE)
```

	coef	exp(coef)	se(coef)	z
sz20_	-1.860e-01	8.303e-01	1.847e-01	-1.007
pc1_	1.935e-01	1.213e+00	1.991e-01	0.972
pc2_	-4.800e-02	9.531e-01	1.874e-01	-0.256
pc3_	-5.137e-02	9.499e-01	2.158e-01	-0.238
pc4_	1.463e-01	1.158e+00	1.931e-01	0.758
age_	3.253e-01	1.385e+00	2.486e-01	1.309
sex	-1.559e+00	2.104e-01	5.320e-01	-2.930
bmi_0_	-1.884e-01	8.283e-01	4.875e-01	-0.387
hyp_0	0.000e+00	1.000e+00	0.000e+00	NaN
cvd_0	2.113e-01	1.235e+00	5.321e-01	0.397
B_dep_0	5.751e-01	1.777e+00	6.890e-01	0.835
trig_0	-1.634e-01	8.492e-01	8.739e-01	-0.187
baseline_hdl	-6.537e-01	5.201e-01	6.896e-01	-0.948
stroke_0	1.555e+00	4.736e+00	6.338e-01	2.454
B_smokstatus_0	-1.020e-01	9.031e-01	7.092e-01	-0.144
exercise_light	-1.622e+01	9.065e-08	3.674e+03	-0.004
exercise_vig	1.112e-02	1.011e+00	4.665e-01	0.024
EduLevel_low	8.845e-01	2.422e+00	7.468e-01	1.184
EduLevel_med	6.189e-01	1.857e+00	6.899e-01	0.897
wealth_med	-1.154e-01	8.910e-01	4.803e-01	-0.240
wealth_low	-1.254e+00	2.855e-01	6.301e-01	-1.990
t2dm_	4.320e-01	1.540e+00	2.425e-01	1.781

	p
sz20_	0.31408
pc1_	0.33122
pc2_	0.79786
pc3_	0.81184
pc4_	0.44870
age_	0.19065
sex	0.00339
bmi_0_	0.69908
hyp_0	NaN
cvd_0	0.69127
B_dep_0	0.40386
trig_0	0.85164
baseline_hdl	0.34316
stroke_0	0.01414
B_smokstatus_0	0.88569
exercise_light	0.99648
exercise_vig	0.98098
EduLevel_low	0.23627
EduLevel_med	0.36973
wealth_med	0.81009
wealth_low	0.04664
t2dm_	0.07487

```
Likelihood ratio test=35.54  on 22 df, p=0.03402
n= 571, number of events= 27
```

```
[[6]]
Call:
coxph(formula = as.formula(paste("Surv(df_train$time, df_train$event) ~",
    paste(predict.factors, collapse = "+"))), data = df_train,
    x = TRUE)

                      coef exp(coef)  se(coef)       z
sz20_             -0.011274  0.988789  0.139791 -0.081
pc1_              -0.154996  0.856419  0.141965 -1.092
pc2_              -0.099009  0.905734  0.135994 -0.728
pc3_              -0.074706  0.928016  0.162616 -0.459
pc4_               0.083769  1.087378  0.145118  0.577
age_               0.394060  1.482989  0.174110  2.263
sex                0.139304  1.149474  0.311587  0.447
bmi_0_             0.636972  1.890747  0.409179  1.557
hyp_0              0.000000  1.000000  0.000000    NaN
cvd_0             -0.013386  0.986703  0.372868 -0.036
B_dep_0            0.243176  1.275293  0.363770  0.668
trig_0             0.021343  1.021572  0.113353  0.188
baseline_hdl      -1.165005  0.311921  0.535653 -2.175
stroke_0           0.282131  1.325952  0.497262  0.567
B_smokstatus_0     0.869997  2.386904  0.331669  2.623
exercise_light    -1.090029  0.336207  1.036140 -1.052
exercise_vig       0.183608  1.201544  0.317898  0.578
EduLevel_low       0.511165  1.667233  0.777506  0.657
EduLevel_med       0.990390  2.692285  0.759421  1.304
wealth_med         0.009735  1.009782  0.402627  0.024
wealth_low         0.412730  1.510937  0.380883  1.084
t2dm_              0.153435  1.165832  0.134674  1.139
                      p
sz20_             0.93572
pc1_              0.27493
pc2_              0.46659
pc3_              0.64594
pc4_              0.56377
age_              0.02362
sex               0.65482
bmi_0_            0.11954
hyp_0                 NaN
cvd_0             0.97136
B_dep_0           0.50382
trig_0            0.85065
baseline_hdl      0.02964
stroke_0          0.57046
B_smokstatus_0    0.00871
exercise_light    0.29280
exercise_vig      0.56356
EduLevel_low      0.51090
EduLevel_med      0.19219
wealth_med        0.98071
wealth_low        0.27854
t2dm_             0.25458

Likelihood ratio test=40.12  on 22 df, p=0.01046
n= 513, number of events= 55
```

```
[[7]]
Call:
coxph(formula = as.formula(paste("Surv(df_train$time, df_train$event) ~",
    paste(predict.factors, collapse = "+"))), data = df_train,
    x = TRUE)

                      coef exp(coef)  se(coef)       z
sz20_             0.096124  1.100895  0.166732   0.577
pc1_              0.295299  1.343527  0.146267   2.019
pc2_             -0.033456  0.967098  0.156191  -0.214
pc3_             -0.008621  0.991416  0.158802  -0.054
pc4_              0.065802  1.068015  0.136352   0.483
age_              0.273777  1.314921  0.172266   1.589
sex               0.462846  1.588588  0.350273   1.321
bmi_0_            0.411092  1.508464  0.745288   0.552
hyp_0             0.000000  1.000000  0.000000     NaN
cvd_0             0.058590  1.060341  0.443243   0.132
B_dep_0           0.310140  1.363616  0.419457   0.739
trig_0            0.157123  1.170140  0.123973   1.267
baseline_hdl     -0.123254  0.884039  0.538927  -0.229
stroke_0          1.179539  3.252873  1.157620   1.019
B_smokstatus_0   -0.110199  0.895655  0.418682  -0.263
exercise_light    0.294174  1.342017  0.649044   0.453
exercise_vig     -0.120314  0.886642  0.357205  -0.337
EduLevel_low      0.713879  2.041896  0.605558   1.179
EduLevel_med      0.237398  1.267945  0.575619   0.412
wealth_med       -0.304955  0.737156  0.395771  -0.771
wealth_low        0.014439  1.014544  0.392022   0.037
t2dm_             0.358255  1.430830  0.164680   2.175
                      p
sz20_             0.5643
pc1_              0.0435
pc2_              0.8304
pc3_              0.9567
pc4_              0.6294
age_              0.1120
sex               0.1864
bmi_0_            0.5812
hyp_0                NaN
cvd_0             0.8948
B_dep_0           0.4597
trig_0            0.2050
baseline_hdl      0.8191
stroke_0          0.3082
B_smokstatus_0 0.7924
exercise_light 0.6504
exercise_vig      0.7363
EduLevel_low      0.2384
EduLevel_med      0.6800
wealth_med        0.4410
wealth_low        0.9706
t2dm_             0.0296

Likelihood ratio test=29.98  on 22 df, p=0.1188
n= 690, number of events= 45
```

```
[[8]]
Call:
coxph(formula = as.formula(paste("Surv(df_train$time, df_train$event) ~",
    paste(predict.factors, collapse = "+"))), data = df_train,
    x = TRUE)
```

	coef	exp(coef)	se(coef)	z	p
sz20_	0.25237	1.28708	0.13378	1.886	0.0592
pc1_	-0.16601	0.84704	0.14299	-1.161	0.2456
pc2_	0.05098	1.05230	0.13211	0.386	0.6996
pc3_	-0.05414	0.94730	0.13964	-0.388	0.6982
pc4_	-0.16769	0.84562	0.14081	-1.191	0.2337
age_	0.34124	1.40669	0.17805	1.917	0.0553
sex	-0.32162	0.72497	0.32029	-1.004	0.3153
bmi_0_	-0.11446	0.89185	0.17755	-0.645	0.5191
hyp_0	0.00000	1.00000	0.00000	NaN	NaN
cvd_0	0.09546	1.10017	0.41575	0.230	0.8184
B_dep_0	-0.18880	0.82796	0.39266	-0.481	0.6306
trig_0	-0.11839	0.88835	0.11493	-1.030	0.3030
baseline_hdl	-0.37413	0.68789	0.60139	-0.622	0.5339
stroke_0	-0.33491	0.71540	1.10075	-0.304	0.7609
B_smokstatus_0	0.14017	1.15046	0.38681	0.362	0.7171
exercise_light	1.00185	2.72333	0.42555	2.354	0.0186
exercise_vig	-1.15760	0.31424	0.46233	-2.504	0.0123
EduLevel_low	0.44896	1.56669	0.56666	0.792	0.4282
EduLevel_med	0.70294	2.01968	0.52983	1.327	0.1846
wealth_med	-0.40747	0.66533	0.41063	-0.992	0.3211
wealth_low	0.23269	1.26199	0.38410	0.606	0.5446
t2dm_	0.40250	1.49555	0.13742	2.929	0.0034

```
Likelihood ratio test=45.4  on 22 df, p=0.002357
n= 216, number of events= 65

[[9]]
Call:
coxph(formula = as.formula(paste("Surv(df_train$time, df_train$event) ~",
    paste(predict.factors, collapse = "+"))), data = df_train,
    x = TRUE)
```

	coef	exp(coef)	se(coef)	z
sz20_	4.702e-02	1.048e+00	2.498e-01	0.188
pc1_	-8.432e-02	9.191e-01	2.529e-01	-0.333
pc2_	-7.434e-02	9.284e-01	2.579e-01	-0.288
pc3_	-2.424e-01	7.847e-01	2.395e-01	-1.012
pc4_	2.398e-01	1.271e+00	2.322e-01	1.033
age_	5.530e-01	1.738e+00	3.340e-01	1.656
sex	-1.799e-01	8.353e-01	5.680e-01	-0.317
bmi_0_	-4.108e-01	6.631e-01	1.532e+00	-0.268
hyp_0	0.000e+00	1.000e+00	0.000e+00	NaN
cvd_0	-1.538e-01	8.575e-01	8.036e-01	-0.191
B_dep_0	8.204e-01	2.271e+00	6.990e-01	1.174
trig_0	1.084e+00	2.956e+00	1.133e+00	0.956
baseline_hdl	-1.383e-01	8.708e-01	7.383e-01	-0.187
stroke_0	-1.641e+01	7.469e-08	1.555e+04	-0.001
B_smokstatus_0	6.148e-01	1.849e+00	8.530e-01	0.721

```
exercise_light -1.693e+01  4.428e-08  6.612e+03 -0.003
exercise_vig    2.466e-02  1.025e+00  5.245e-01  0.047
EduLevel_low   -3.607e-01  6.972e-01  9.823e-01 -0.367
EduLevel_med    4.232e-01  1.527e+00  7.852e-01  0.539
wealth_med      8.626e-01  2.369e+00  5.808e-01  1.485
wealth_low     -4.465e-02  9.563e-01  8.886e-01 -0.050
t2dm_           2.279e-02  1.023e+00  2.798e-01  0.081
                     p
sz20_           0.8507
pc1_            0.7389
pc2_            0.7732
pc3_            0.3113
pc4_            0.3017
age_            0.0977
sex             0.7514
bmi_0_          0.7886
hyp_0              NaN
cvd_0           0.8482
B_dep_0         0.2406
trig_0          0.3388
baseline_hdl    0.8514
stroke_0        0.9992
B_smokstatus_0  0.4710
exercise_light  0.9980
exercise_vig    0.9625
EduLevel_low    0.7134
EduLevel_med    0.5899
wealth_med      0.1375
wealth_low      0.9599
t2dm_           0.9351


Likelihood ratio test=15.27  on 22 df, p=0.8506
n= 587, number of events= 17


[[10]]
Call:
coxph(formula = as.formula(paste("Surv(df_train$time, df_train$event) ~",
    paste(predict.factors, collapse = "+"))), data = df_train,
    x = TRUE)


                     coef  exp(coef)   se(coef)       z
sz20_           -3.319e-01  7.175e-01  2.196e-01 -1.511
pc1_            -5.071e-01  6.023e-01  2.508e-01 -2.022
pc2_             6.083e-02  1.063e+00  2.051e-01  0.297
pc3_            -4.119e-02  9.596e-01  2.532e-01 -0.163
pc4_            -1.943e-02  9.808e-01  2.539e-01 -0.077
age_            -3.807e-01  6.833e-01  2.626e-01 -1.450
sex             -2.540e-02  9.749e-01  5.340e-01 -0.048
bmi_0_          -1.023e-01  9.028e-01  3.173e-01 -0.322
hyp_0            0.000e+00  1.000e+00  0.000e+00    NaN
cvd_0           -5.064e-01  6.027e-01  6.055e-01 -0.836
B_dep_0          2.128e-01  1.237e+00  5.312e-01  0.401
trig_0           9.078e-01  2.479e+00  9.471e-01  0.959
baseline_hdl    -3.108e-01  7.328e-01  7.379e-01 -0.421
stroke_0         6.948e-01  2.003e+00  8.714e-01  0.797
B_smokstatus_0   3.928e-01  1.481e+00  6.939e-01  0.566
```

```
exercise_light -1.682e+01  4.978e-08  4.374e+03 -0.004
exercise_vig    -3.483e-01  7.059e-01  5.227e-01 -0.666
EduLevel_low     1.049e-01  1.111e+00  8.085e-01  0.130
EduLevel_med    -3.643e-01  6.947e-01  7.220e-01 -0.505
wealth_med       2.073e-01  1.230e+00  6.006e-01  0.345
wealth_low      -3.621e-01  6.962e-01  6.727e-01 -0.538
t2dm_           -2.696e-02  9.734e-01  2.087e-01 -0.129
                         p
sz20_               0.1307
pc1_                0.0432
pc2_                0.7668
pc3_                0.8708
pc4_                0.9390
age_                0.1471
sex                 0.9621
bmi_0_              0.7472
hyp_0                  NaN
cvd_0               0.4030
B_dep_0             0.6887
trig_0              0.3378
baseline_hdl        0.6736
stroke_0            0.4253
B_smokstatus_0      0.5713
exercise_light      0.9969
exercise_vig        0.5053
EduLevel_low        0.8968
EduLevel_med        0.6138
wealth_med          0.7300
wealth_low          0.5903
t2dm_               0.8973

Likelihood ratio test=22.5  on 22 df, p=0.4305
n= 160, number of events= 29

[[11]]
Call:
coxph(formula = as.formula(paste("Surv(df_train$time, df_train$event) ~",
    paste(predict.factors, collapse = "+"))), data = df_train,
    x = TRUE)

                      coef  exp(coef)   se(coef)        z
sz20_          -2.966e-01  7.434e-01  4.059e-01 -0.731
pc1_           -1.145e-01  8.918e-01  5.838e-01 -0.196
pc2_           -4.399e-01  6.441e-01  5.193e-01 -0.847
pc3_            2.028e-01  1.225e+00  4.951e-01  0.410
pc4_           -3.105e-01  7.331e-01  5.542e-01 -0.560
age_            3.448e-01  1.412e+00  5.622e-01  0.613
sex             8.622e-01  2.368e+00  1.043e+00  0.827
bmi_0_         -1.162e+00  3.127e-01  1.221e+00 -0.952
hyp_0           0.000e+00  1.000e+00  0.000e+00      NaN
cvd_0          -1.894e+01  5.921e-09  1.253e+04 -0.002
B_dep_0         1.400e+00  4.057e+00  1.108e+00  1.264
trig_0          2.921e+00  1.856e+01  4.057e+00  0.720
baseline_hdl   -2.512e+00  8.111e-02  1.526e+00 -1.646
stroke_0       -1.768e+01  2.105e-08  3.618e+04  0.000
B_smokstatus_0 -1.830e+01  1.126e-08  1.329e+04 -0.001
```

```
exercise_light -1.757e+01  2.335e-08  2.266e+04 -0.001
exercise_vig   -1.597e+00  2.025e-01  1.528e+00 -1.045
EduLevel_low    1.577e+00  4.842e+00  1.688e+00  0.934
EduLevel_med    9.949e-01  2.704e+00  1.575e+00  0.632
wealth_med     -1.835e+00  1.596e-01  1.204e+00 -1.525
wealth_low     -1.012e+00  3.637e-01  1.439e+00 -0.703
t2dm_           6.480e-01  1.912e+00  4.224e-01  1.534
                          p
sz20_              0.4650
pc1_               0.8445
pc2_               0.3969
pc3_               0.6820
pc4_               0.5753
age_               0.5396
sex                0.4084
bmi_0_             0.3410
hyp_0                 NaN
cvd_0              0.9988
B_dep_0            0.2061
trig_0             0.4715
baseline_hdl       0.0997
stroke_0           0.9996
B_smokstatus_0     0.9989
exercise_light     0.9994
exercise_vig       0.2959
EduLevel_low       0.3501
EduLevel_med       0.5277
wealth_med         0.1273
wealth_low         0.4822
t2dm_              0.1250

Likelihood ratio test=16.83   on 22 df, p=0.7727
n= 172, number of events= 7


[[12]]
Call:
coxph(formula = as.formula(paste("Surv(df_train$time, df_train$event) ~",
    paste(predict.factors, collapse = "+"))), data = df_train,
    x = TRUE)


                     coef  exp(coef)   se(coef)       z
sz20_           1.521e-01  1.164e+00  1.741e-01   0.874
pc1_           -1.252e-01  8.824e-01  1.802e-01  -0.694
pc2_            1.210e-02  1.012e+00  1.813e-01   0.067
pc3_            4.433e-02  1.045e+00  1.760e-01   0.252
pc4_            4.455e-02  1.046e+00  1.687e-01   0.264
age_           -3.912e-01  6.763e-01  2.528e-01  -1.547
sex            -8.856e-01  4.125e-01  3.638e-01  -2.434
bmi_0_          2.874e-01  1.333e+00  2.213e-01   1.298
hyp_0           0.000e+00  1.000e+00  0.000e+00     NaN
cvd_0          -1.319e-01  8.764e-01  6.537e-01  -0.202
B_dep_0        -4.993e-01  6.070e-01  4.385e-01  -1.139
trig_0         -1.074e-01  8.981e-01  1.489e-01  -0.722
baseline_hdl   -1.278e-01  8.801e-01  6.195e-01  -0.206
stroke_0       -1.309e+01  2.068e-06  3.056e+03  -0.004
B_smokstatus_0  7.334e-01  2.082e+00  3.724e-01   1.970
```

```
exercise_light  8.549e-02  1.089e+00  6.779e-01  0.126
exercise_vig   -1.020e-01  9.031e-01  3.868e-01 -0.264
EduLevel_low    3.854e-01  1.470e+00  6.762e-01  0.570
EduLevel_med    1.802e-01  1.197e+00  6.702e-01  0.269
wealth_med      6.886e-01  1.991e+00  5.203e-01  1.324
wealth_low      9.602e-01  2.612e+00  5.127e-01  1.873
t2dm_           2.250e-01  1.252e+00  1.551e-01  1.451
                       p
sz20_             0.3822
pc1_              0.4874
pc2_              0.9468
pc3_              0.8012
pc4_              0.7917
age_              0.1218
sex               0.0149
bmi_0_            0.1941
hyp_0                NaN
cvd_0             0.8401
B_dep_0           0.2549
trig_0            0.4705
baseline_hdl      0.8366
stroke_0          0.9966
B_smokstatus_0    0.0489
exercise_light    0.8996
exercise_vig      0.7921
EduLevel_low      0.5688
EduLevel_med      0.7880
wealth_med        0.1856
wealth_low        0.0611
t2dm_             0.1469

Likelihood ratio test=23  on 22 df, p=0.4017
n= 219, number of events= 46

[[13]]
Call:
coxph(formula = as.formula(paste("Surv(df_train$time, df_train$event) ~",
    paste(predict.factors, collapse = "+"))), data = df_train,
    x = TRUE)

                    coef exp(coef) se(coef)       z       p
sz20_           -0.01943   0.98076  0.15994 -0.121 0.9033
pc1_            -0.05875   0.94294  0.17609 -0.334 0.7387
pc2_            -0.27982   0.75592  0.17717 -1.579 0.1143
pc3_            -0.21255   0.80852  0.17419 -1.220 0.2224
pc4_            -0.23437   0.79107  0.18160 -1.291 0.1969
age_             0.23693   1.26735  0.22030  1.075 0.2822
sex             -1.17824   0.30782  0.40706 -2.895 0.0038
bmi_0_           0.49890   1.64692  0.19724  2.529 0.0114
hyp_0            0.00000   1.00000  0.00000    NaN    NaN
cvd_0            0.52644   1.69290  0.48003  1.097 0.2728
B_dep_0          0.47664   1.61066  0.46335  1.029 0.3036
trig_0           1.28808   3.62581  1.04208  1.236 0.2164
baseline_hdl     0.69436   2.00243  0.64934  1.069 0.2849
stroke_0         1.70850   5.52067  1.10355  1.548 0.1216
B_smokstatus_0   0.83424   2.30306  0.44714  1.866 0.0621
```

```
exercise_light  0.32573    1.38504   0.61617   0.529 0.5971
exercise_vig    0.26684    1.30584   0.40304   0.662 0.5079
EduLevel_low    0.16464    1.17897   0.62291   0.264 0.7915
EduLevel_med   -0.32681    0.72122   0.59882  -0.546 0.5852
wealth_med      0.55843    1.74793   0.44308   1.260 0.2075
wealth_low     -0.09509    0.90929   0.48871  -0.195 0.8457
t2dm_           0.45515    1.57641   0.19461   2.339 0.0193
```

```
Likelihood ratio test=35.22  on 22 df, p=0.03677
n= 399, number of events= 38
```

```
[[14]]
Call:
coxph(formula = as.formula(paste("Surv(df_train$time, df_train$event) ~",
    paste(predict.factors, collapse = "+"))), data = df_train,
    x = TRUE)
```

```
                      coef  exp(coef)   se(coef)       z
sz20_            1.998e-01  1.221e+00  2.501e-01   0.799
pc1_            -2.734e-01  7.608e-01  2.428e-01  -1.126
pc2_            -5.477e-01  5.783e-01  2.303e-01  -2.378
pc3_            -9.252e-02  9.116e-01  2.839e-01  -0.326
pc4_            -3.480e-01  7.061e-01  2.821e-01  -1.234
age_             3.004e-01  1.350e+00  2.942e-01   1.021
sex              2.577e-01  1.294e+00  4.843e-01   0.532
bmi_0_           1.773e+00  5.891e+00  9.619e-01   1.844
hyp_0            1.634e-01  1.178e+00  4.413e-01   0.370
cvd_0            3.132e-01  1.368e+00  6.440e-01   0.486
B_dep_0          1.227e+00  3.411e+00  5.785e-01   2.121
trig_0          -2.054e-01  8.143e-01  1.991e-01  -1.032
baseline_hdl     3.308e+00  2.732e+01  1.218e+00   2.717
stroke_0        -1.670e+01  5.566e-08  6.048e+03  -0.003
B_smokstatus_0   2.988e-01  1.348e+00  4.869e-01   0.614
exercise_light  -2.510e+00  8.124e-02  1.376e+00  -1.824
exercise_vig    -1.146e+00  3.181e-01  5.828e-01  -1.966
EduLevel_low    -7.482e-01  4.732e-01  7.573e-01  -0.988
EduLevel_med    -6.955e-01  4.988e-01  7.624e-01  -0.912
wealth_med       5.283e-02  1.054e+00  6.188e-01   0.085
wealth_low       3.721e-01  1.451e+00  5.056e-01   0.736
t2dm_           -8.291e-03  9.917e-01  1.858e-01  -0.045
                       p
sz20_            0.42438
pc1_             0.26017
pc2_             0.01740
pc3_             0.74447
pc4_             0.21726
age_             0.30719
sex              0.59464
bmi_0_           0.06523
hyp_0            0.71119
cvd_0            0.62677
B_dep_0          0.03391
trig_0           0.30221
baseline_hdl     0.00659
stroke_0         0.99780
B_smokstatus_0   0.53947
```

```
exercise_light 0.06816
exercise_vig   0.04934
EduLevel_low   0.32311
EduLevel_med   0.36160
wealth_med     0.93196
wealth_low     0.46180
t2dm_          0.96442


Likelihood ratio test=33.61  on 22 df, p=0.05385
n= 130, number of events= 32
```

```
$test
    T     AUCROC          BS   BS_scaled    C_score
1 10 0.7057479 0.09405853   0.01861455 0.6762464
2 10 0.7000949 0.08683577  -0.05992456 0.6731115
3 10 0.7222338 0.07753214   0.01904457 0.6995087
  Calib_slope Calib_alpha test cv_n
1   0.4085616  0.07763810    1    1
2   0.3608876  0.02919129    1    2
3   0.3453140  0.02963581    1    3


$train
    T     AUCROC          BS BS_scaled    C_score
1 10 0.8468496 0.06364370 0.2127516 0.8176759
2 10 0.8539843 0.06850565 0.2183306 0.8305529
3 10 0.8301162 0.07197724 0.1863173 0.7963035
  Calib_slope Calib_alpha test cv_n
1    1.009545  0.03732963    0    1
2    1.029468  0.03998930    0    2
3    1.021937  0.04347909    0    3


$testaverage
          T      AUCROC          BS   BS_scaled
10.00000000  0.70935886  0.08614214 -0.00742181
    C_score Calib_slope Calib_alpha        test
 0.68295553  0.37158773  0.04548840  1.00000000


$trainaverage
          T      AUCROC          BS   BS_scaled
 10.0000000   0.8436500   0.0680422   0.2057998
    C_score Calib_slope Calib_alpha        test
  0.8148441   1.0203165   0.0402660   0.0000000


$model_list
$model_list[[1]]
$model_list[[1]]$vimp10
        bmi_0_          trig_0           hyp_0
  0.0462592804   0.0087652941    0.0081749051
          pc2_            t2dm_      wealth_low
  0.0072019955   0.0061080080    0.0046154275
           sex B_smokstatus_0     baseline_hdl
  0.0031276687   0.0017127709    0.0015332970
          pc4_        stroke_0    EduLevel_med
  0.0013104278   0.0011652414    0.0004816331
   exercise_vig            age_      wealth_med
  0.0004398451   0.0004344877   -0.0002367985


$model_list[[1]]$treemodel
n= 3978

node), split, n, deviance, yval
      * denotes terminal node

 1) root 3978 2090.3410 1.0000000
   2) bmi_0_< 0.310594 2513   856.6503 0.5153783
     4) trig_0< 1.45 1413   300.4899 0.3021157
```

```
      8) hyp_0< 0.5 1037  165.9046 0.2243909 *
      9) hyp_0>=0.5 376  128.1333 0.5542855 *
    5) trig_0>=1.45 1100  532.6327 0.7988587
     10) hyp_0< 0.5 765  287.7574 0.5994389 *
     11) hyp_0>=0.5 335  234.8774 1.2866080 *
   3) bmi_0_>=0.310594 1465 1109.4060 1.8792320
     6) hyp_0< 0.5 805  512.3770 1.3744330
      12) trig_0< 2.75 671  360.8545 1.1276720 *
      13) trig_0>=2.75 134  138.9062 2.6050880 *
     7) hyp_0>=0.5 660  577.8229 2.5254730
      14) bmi_0_< 1.281423 467  360.0770 1.9894790 *
      15) bmi_0_>=1.281423 193  205.7574 3.6969770 *


$model_list[[1]]$coxmodels
$model_list[[1]]$coxmodels[[1]]
Call:
coxph(formula = as.formula(paste("Surv(df_train$time, df_train$event) ~",
    paste(predict.factors, collapse = "+"))), data = df_train,
    x = TRUE)


                   coef exp(coef) se(coef)       z
sz20_            0.01694   1.01709  0.12861   0.132
pc1_             0.05151   1.05286  0.12331   0.418
pc2_            -0.05923   0.94249  0.13566  -0.437
pc3_             0.09622   1.10100  0.13271   0.725
pc4_             0.01002   1.01007  0.12821   0.078
age_            -0.03781   0.96290  0.15157  -0.249
sex             -0.56318   0.56939  0.29296  -1.922
bmi_0_          -0.14681   0.86345  0.48370  -0.304
hyp_0            0.00000   1.00000  0.00000     NaN
cvd_0           -0.10429   0.90097  0.34296  -0.304
B_dep_0          0.62920   1.87611  0.32134   1.958
trig_0           0.14639   1.15765  0.08089   1.810
baseline_hdl     0.56199   1.75416  0.45862   1.225
stroke_0         0.44076   1.55389  0.48485   0.909
B_smokstatus_0  -0.44291   0.64216  0.42678  -1.038
exercise_light  -0.20743   0.81267  0.61445  -0.338
exercise_vig    -0.33957   0.71208  0.31817  -1.067
EduLevel_low     0.10573   1.11152  0.45805   0.231
EduLevel_med     0.07523   1.07814  0.43621   0.172
wealth_med       0.06387   1.06595  0.38080   0.168
wealth_low       0.61167   1.84350  0.35471   1.724
t2dm_            0.42399   1.52804  0.13335   3.180
                     p
sz20_            0.89519
pc1_             0.67614
pc2_             0.66240
pc3_             0.46844
pc4_             0.93771
age_             0.80300
sex              0.05455
bmi_0_           0.76149
hyp_0                NaN
cvd_0            0.76106
B_dep_0          0.05023
trig_0           0.07033
```

```
baseline_hdl     0.22042
stroke_0         0.36332
B_smokstatus_0  0.29936
exercise_light  0.73568
exercise_vig     0.28585
EduLevel_low     0.81745
EduLevel_med     0.86307
wealth_med       0.86680
wealth_low       0.08464
t2dm_            0.00148

Likelihood ratio test=34.17  on 22 df, p=0.04718
n= 467, number of events= 67


$model_list[[1]]$coxmodels[[2]]
Call:
coxph(formula = as.formula(paste("Surv(df_train$time, df_train$event) ~",
    paste(predict.factors, collapse = "+"))), data = df_train,
    x = TRUE)

                   coef exp(coef) se(coef)       z       p
sz20_           0.20026   1.22172  0.21063   0.951 0.3417
pc1_            0.40662   1.50173  0.16289   2.496 0.0125
pc2_           -0.23100   0.79374  0.17825  -1.296 0.1950
pc3_           -0.02248   0.97777  0.16605  -0.135 0.8923
pc4_            0.22598   1.25355  0.14984   1.508 0.1315
age_            0.29917   1.34873  0.20058   1.492 0.1358
sex             0.81086   2.24983  0.39759   2.039 0.0414
bmi_0_          0.46241   1.58790  0.40995   1.128 0.2593
hyp_0           0.00000   1.00000  0.00000     NaN     NaN
cvd_0          -0.92612   0.39609  0.65556  -1.413 0.1577
B_dep_0         0.32772   1.38780  0.45005   0.728 0.4665
trig_0          0.16789   1.18280  0.18275   0.919 0.3583
baseline_hdl   -1.01935   0.36083  0.62785  -1.624 0.1045
stroke_0        1.23950   3.45388  0.81157   1.527 0.1267
B_smokstatus_0 -0.32286   0.72408  0.46533  -0.694 0.4878
exercise_light  1.52228   4.58265  0.59273   2.568 0.0102
exercise_vig   -0.03926   0.96150  0.40190  -0.098 0.9222
EduLevel_low    1.91969   6.81883  1.07861   1.780 0.0751
EduLevel_med    1.66621   5.29209  1.04728   1.591 0.1116
wealth_med     -0.41288   0.66174  0.45692  -0.904 0.3662
wealth_low     -0.14671   0.86354  0.46099  -0.318 0.7503
t2dm_           0.34775   1.41588  0.19050   1.825 0.0679

Likelihood ratio test=46.12  on 22 df, p=0.001907
n= 765, number of events= 36


$model_list[[1]]$coxmodels[[3]]
Call:
coxph(formula = as.formula(paste("Surv(df_train$time, df_train$event) ~",
    paste(predict.factors, collapse = "+"))), data = df_train,
    x = TRUE)

                   coef  exp(coef)   se(coef)       z
sz20_          -1.767e-01  8.381e-01  2.840e-01  -0.622
pc1_            1.362e-01  1.146e+00  2.841e-01   0.480
```

```
pc2_            -3.989e-01  6.710e-01  2.608e-01 -1.530
pc3_            -2.958e-01  7.439e-01  2.923e-01 -1.012
pc4_            -8.918e-02  9.147e-01  3.032e-01 -0.294
age_             5.980e-01  1.818e+00  3.693e-01  1.619
sex             -2.088e+00  1.239e-01  7.892e-01 -2.646
bmi_0_          -5.236e-01  5.924e-01  6.293e-01 -0.832
hyp_0            0.000e+00  1.000e+00  0.000e+00    NaN
cvd_0            7.070e-01  2.028e+00  7.237e-01  0.977
B_dep_0          1.212e+00  3.360e+00  9.119e-01  1.329
trig_0           8.545e-01  2.350e+00  1.188e+00  0.719
baseline_hdl     1.271e-01  1.136e+00  9.505e-01  0.134
stroke_0         5.487e-01  1.731e+00  1.174e+00  0.467
B_smokstatus_0  -1.427e-01  8.670e-01  8.504e-01 -0.168
exercise_light  -1.836e+01  1.064e-08  7.928e+03 -0.002
exercise_vig    -3.684e-01  6.918e-01  6.450e-01 -0.571
EduLevel_low     3.682e-01  1.445e+00  1.238e+00  0.297
EduLevel_med    -1.614e-01  8.510e-01  1.194e+00 -0.135
wealth_med       1.628e+00  5.095e+00  8.053e-01  2.022
wealth_low      -1.284e-01  8.795e-01  9.303e-01 -0.138
t2dm_            3.885e-01  1.475e+00  2.975e-01  1.306
                         p
sz20_            0.53385
pc1_             0.63157
pc2_             0.12610
pc3_             0.31149
pc4_             0.76863
age_             0.10534
sex              0.00814
bmi_0_           0.40535
hyp_0                NaN
cvd_0            0.32863
B_dep_0          0.18386
trig_0           0.47195
baseline_hdl     0.89362
stroke_0         0.64033
B_smokstatus_0   0.86675
exercise_light   0.99815
exercise_vig     0.56789
EduLevel_low     0.76616
EduLevel_med     0.89251
wealth_med       0.04317
wealth_low       0.89022
t2dm_            0.19154


Likelihood ratio test=26.31  on 22 df, p=0.2385
n= 376, number of events= 15


$model_list[[1]]$coxmodels[[4]]
Call:
coxph(formula = as.formula(paste("Surv(df_train$time, df_train$event) ~",
    paste(predict.factors, collapse = "+"))), data = df_train,
    x = TRUE)


                    coef  exp(coef)   se(coef)      z
sz20_           -7.145e-02  9.310e-01  1.857e-01 -0.385
pc1_            -1.758e-01  8.388e-01  2.038e-01 -0.862
```

```
pc2_             2.972e-04  1.000e+00  2.001e-01   0.001
pc3_            -2.326e-01  7.925e-01  2.000e-01  -1.163
pc4_            -1.239e-01  8.835e-01  2.239e-01  -0.553
age_             4.026e-01  1.496e+00  2.340e-01   1.721
sex             -3.832e-01  6.817e-01  4.261e-01  -0.899
bmi_0_           5.297e-01  1.698e+00  5.510e-01   0.961
hyp_0            0.000e+00  1.000e+00  0.000e+00     NaN
cvd_0            8.003e-01  2.226e+00  4.396e-01   1.820
B_dep_0         -1.312e-01  8.770e-01  5.439e-01  -0.241
trig_0           2.168e-02  1.022e+00  1.389e-01   0.156
baseline_hdl    -1.599e+00  2.020e-01  7.399e-01  -2.161
stroke_0        -1.951e-01  8.227e-01  6.814e-01  -0.286
B_smokstatus_0   1.079e+00  2.941e+00  4.201e-01   2.568
exercise_light -1.675e+01  5.314e-08  3.501e+03  -0.005
exercise_vig    -1.705e-01  8.432e-01  4.697e-01  -0.363
EduLevel_low     8.075e-01  2.242e+00  1.100e+00   0.734
EduLevel_med     6.890e-01  1.992e+00  1.092e+00   0.631
wealth_med       1.477e-01  1.159e+00  6.517e-01   0.227
wealth_low       8.294e-01  2.292e+00  5.648e-01   1.469
t2dm_            1.913e-01  1.211e+00  1.763e-01   1.085
                        p
sz20_              0.7004
pc1_               0.3885
pc2_               0.9988
pc3_               0.2449
pc4_               0.5800
age_               0.0853
sex                0.3685
bmi_0_             0.3364
hyp_0                 NaN
cvd_0              0.0687
B_dep_0            0.8093
trig_0             0.8759
baseline_hdl       0.0307
stroke_0           0.7746
B_smokstatus_0     0.0102
exercise_light     0.9962
exercise_vig       0.7166
EduLevel_low       0.4628
EduLevel_med       0.5281
wealth_med         0.8207
wealth_low         0.1420
t2dm_              0.2780


Likelihood ratio test=45.8  on 22 df, p=0.002095
n= 335, number of events= 32


$model_list[[1]]$coxmodels[[5]]
Call:
coxph(formula = as.formula(paste("Surv(df_train$time, df_train$event) ~",
    paste(predict.factors, collapse = "+"))), data = df_train,
    x = TRUE)


                   coef exp(coef) se(coef)      z      p
sz20_          -0.11388   0.89237  0.13017 -0.875 0.3817
pc1_           -0.14244   0.86724  0.17318 -0.822 0.4108
```

```
pc2_               0.06210    1.06407  0.14022   0.443 0.6579
pc3_              -0.04159    0.95927  0.15869 -0.262 0.7933
pc4_              -0.28688    0.75060  0.18255 -1.572 0.1161
age_               0.37663    1.45737  0.20228   1.862 0.0626
sex               -0.42539    0.65352  0.36550 -1.164 0.2445
bmi_0_            -0.24551    0.78231  0.24883 -0.987 0.3238
hyp_0              0.00000    1.00000  0.00000    NaN    NaN
cvd_0             -0.88819    0.41140  0.52752 -1.684 0.0922
B_dep_0           -0.23209    0.79287  0.41348 -0.561 0.5746
trig_0            -0.16571    0.84729  0.14097 -1.176 0.2398
baseline_hdl      -0.67294    0.51021  0.58267 -1.155 0.2481
stroke_0           0.65948    1.93379  1.14804   0.574 0.5657
B_smokstatus_0     0.89645    2.45088  0.40616   2.207 0.0273
exercise_light     0.99777    2.71223  0.51668   1.931 0.0535
exercise_vig      -0.79215    0.45287  0.46907 -1.689 0.0913
EduLevel_low       0.06125    1.06317  0.58687   0.104 0.9169
EduLevel_med       0.25773    1.29399  0.56990   0.452 0.6511
wealth_med        -0.37272    0.68886  0.43414 -0.859 0.3906
wealth_low        -0.36278    0.69574  0.43729 -0.830 0.4068
t2dm_              0.25631    1.29216  0.15205   1.686 0.0918


Likelihood ratio test=30.97  on 22 df, p=0.09679
n= 193, number of events= 52


$model_list[[1]]$coxmodels[[6]]
Call:
coxph(formula = as.formula(paste("Surv(df_train$time, df_train$event) ~",
    paste(predict.factors, collapse = "+"))), data = df_train,
    x = TRUE)


                     coef  exp(coef)   se(coef)       z
sz20_           -1.588e-01  8.531e-01  2.275e-01 -0.698
pc1_            -1.382e-01  8.709e-01  2.488e-01 -0.556
pc2_             2.139e-01  1.239e+00  2.378e-01  0.900
pc3_            -2.794e-01  7.562e-01  2.589e-01 -1.079
pc4_             1.176e-01  1.125e+00  2.342e-01  0.502
age_             4.371e-01  1.548e+00  3.110e-01  1.405
sex             -1.264e+00  2.825e-01  5.918e-01 -2.136
bmi_0_           5.923e-01  1.808e+00  5.891e-01  1.006
hyp_0            0.000e+00  1.000e+00  0.000e+00    NaN
cvd_0           -8.450e-02  9.190e-01  8.020e-01 -0.105
B_dep_0          4.617e-01  1.587e+00  8.297e-01  0.556
trig_0           7.952e-01  2.215e+00  1.047e+00  0.759
baseline_hdl     7.463e-01  2.109e+00  6.535e-01  1.142
stroke_0        -1.547e+01  1.912e-07  1.878e+04 -0.001
B_smokstatus_0   1.367e+00  3.925e+00  6.523e-01  2.096
exercise_light  -1.692e+01  4.490e-08  6.167e+03 -0.003
exercise_vig    -4.906e-02  9.521e-01  4.904e-01 -0.100
EduLevel_low    -1.372e+00  2.536e-01  1.172e+00 -1.171
EduLevel_med     4.104e-01  1.507e+00  6.039e-01  0.680
wealth_med      -1.136e-01  8.926e-01  5.476e-01 -0.208
wealth_low      -5.347e-01  5.858e-01  8.087e-01 -0.661
t2dm_            2.614e-01  1.299e+00  2.622e-01  0.997
                      p
sz20_            0.4850
pc1_             0.5784
```

```
pc2_              0.3684
pc3_              0.2804
pc4_              0.6156
age_              0.1599
sex               0.0327
bmi_0_            0.3147
hyp_0               NaN
cvd_0             0.9161
B_dep_0           0.5779
trig_0            0.4476
baseline_hdl      0.2535
stroke_0          0.9993
B_smokstatus_0    0.0361
exercise_light    0.9978
exercise_vig      0.9203
EduLevel_low      0.2416
EduLevel_med      0.4968
wealth_med        0.8356
wealth_low        0.5085
t2dm_             0.3189


Likelihood ratio test=23.42  on 22 df, p=0.3785
n= 1037, number of events= 18


$model_list[[1]]$coxmodels[[7]]
Call:
coxph(formula = as.formula(paste("Surv(df_train$time, df_train$event) ~",
    paste(predict.factors, collapse = "+"))), data = df_train,
    x = TRUE)

                      coef  exp(coef)   se(coef)       z
sz20_            -1.424e-01  8.673e-01  1.235e-01  -1.153
pc1_             -1.329e-01  8.755e-01  1.461e-01  -0.910
pc2_             -2.276e-01  7.964e-01  1.416e-01  -1.608
pc3_             -9.059e-02  9.134e-01  1.349e-01  -0.671
pc4_              1.547e-02  1.016e+00  1.439e-01   0.107
age_             -2.019e-01  8.172e-01  1.900e-01  -1.062
sex              -5.984e-01  5.497e-01  3.096e-01  -1.933
bmi_0_            4.207e-01  1.523e+00  1.747e-01   2.408
hyp_0             0.000e+00  1.000e+00  0.000e+00     NaN
cvd_0             2.818e-01  1.326e+00  4.211e-01   0.669
B_dep_0           4.539e-01  1.574e+00  3.338e-01   1.360
trig_0            2.375e-01  1.268e+00  2.677e-01   0.887
baseline_hdl      3.741e-01  1.454e+00  4.537e-01   0.825
stroke_0         -1.609e+01  1.029e-07  3.531e+03  -0.005
B_smokstatus_0    5.482e-01  1.730e+00  3.412e-01   1.607
exercise_light   -3.412e-01  7.109e-01  5.774e-01  -0.591
exercise_vig     -4.333e-01  6.483e-01  3.443e-01  -1.258
EduLevel_low     -1.393e-01  8.699e-01  4.440e-01  -0.314
EduLevel_med     -7.398e-01  4.772e-01  4.373e-01  -1.692
wealth_med        3.502e-01  1.419e+00  3.744e-01   0.935
wealth_low        4.520e-01  1.571e+00  3.928e-01   1.151
t2dm_             5.685e-02  1.059e+00  1.368e-01   0.416
                       p
sz20_             0.2488
pc1_              0.3630
```

```
pc2_              0.1079
pc3_              0.5020
pc4_              0.9144
age_              0.2880
sex               0.0532
bmi_0_            0.0160
hyp_0                NaN
cvd_0             0.5034
B_dep_0           0.1739
trig_0            0.3750
baseline_hdl      0.4096
stroke_0          0.9964
B_smokstatus_0 0.1081
exercise_light 0.5546
exercise_vig      0.2082
EduLevel_low      0.7536
EduLevel_med      0.0907
wealth_med        0.3496
wealth_low        0.2499
t2dm_             0.6777


Likelihood ratio test=34.7  on 22 df, p=0.04168
n= 671, number of events= 59


$model_list[[1]]$coxmodels[[8]]
Call:
coxph(formula = as.formula(paste("Surv(df_train$time, df_train$event) ~",
    paste(predict.factors, collapse = "+"))), data = df_train,
    x = TRUE)

                     coef exp(coef)  se(coef)       z
sz20_            0.179222  1.196286  0.273881   0.654
pc1_            -0.034531  0.966058  0.257754  -0.134
pc2_            -0.348431  0.705794  0.227214  -1.533
pc3_             0.249628  1.283548  0.287760   0.867
pc4_            -0.851719  0.426681  0.330806  -2.575
age_            -0.686242  0.503465  0.374861  -1.831
sex             -0.406378  0.666058  0.561094  -0.724
bmi_0_          -0.102032  0.903001  0.332109  -0.307
hyp_0            0.000000  1.000000  0.000000     NaN
cvd_0            0.542073  1.719569  1.165347   0.465
B_dep_0         -0.371556  0.689660  0.639685  -0.581
trig_0          -0.044057  0.956900  0.278789  -0.158
baseline_hdl     0.134906  1.144430  1.007948   0.134
stroke_0         0.000000  1.000000  0.000000     NaN
B_smokstatus_0 -0.424924  0.653820  0.672920  -0.631
exercise_light  1.308874  3.702002  0.923701   1.417
exercise_vig     0.000657  1.000657  0.527044   0.001
EduLevel_low     1.709021  5.523552  0.926717   1.844
EduLevel_med     0.642069  1.900409  0.867916   0.740
wealth_med      -0.121170  0.885884  0.607929  -0.199
wealth_low      -0.079401  0.923669  0.640941  -0.124
t2dm_            0.554183  1.740519  0.245206   2.260
                        p
sz20_             0.5129
pc1_              0.8934
```

```
pc2_            0.1252
pc3_            0.3857
pc4_            0.0100
age_            0.0672
sex             0.4689
bmi_0_          0.7587
hyp_0              NaN
cvd_0           0.6418
B_dep_0         0.5613
trig_0          0.8744
baseline_hdl    0.8935
stroke_0          NaN
B_smokstatus_0 0.5277
exercise_light 0.1565
exercise_vig    0.9990
EduLevel_low    0.0652
EduLevel_med    0.4594
wealth_med      0.8420
wealth_low      0.9014
t2dm_           0.0238


Likelihood ratio test=25.88  on 22 df, p=0.257
n= 134, number of events= 26



$model_list[[1]]$clusters
[1] 1.989479 0.599439 0.554286 1.286608 3.696977 0.224391
[7] 1.127672 2.605088



$model_list[[2]]
$model_list[[2]]$vimp10
        bmi_0_           trig_0           hyp_0
   0.0447364618    0.0151361566    0.0117574361
           age_    baseline_hdl           t2dm_
   0.0100098220    0.0053352617    0.0050058942
    EduLevel_low            pc4_         stroke_0
   0.0034224723    0.0022185604    0.0021664515
            sex    exercise_vig            pc2_
   0.0015662161    0.0006213739    0.0005771305
 exercise_light            sz20_     EduLevel_med
   0.0004001569    0.0003480480    0.0002163010


$model_list[[2]]$treemodel
n= 3979


node), split, n, deviance, yval
      * denotes terminal node


 1) root 3979 2236.1680 1.0000000
   2) bmi_0_< 0.1228089 2229  743.9276 0.4601545
     4) hyp_0< 0.5 1598  398.4751 0.3080419
       8) age_< 0.5083334 1210  207.3218 0.1956276 *
       9) age_>=0.5083334 388  172.8389 0.7329705 *
     5) hyp_0>=0.5 631  320.9262 0.8918953
      10) trig_0< 1.85 451  162.3999 0.6234802 *
```

```
        11) trig_0>=1.85 180  148.9302 1.5300410 *
     3) bmi_0_>=0.1228089 1750 1358.8730 1.7221500
       6) trig_0< 1.65 815  460.3069 1.0175820
         12) hyp_0< 0.5 483  222.2847 0.6623664 *
         13) hyp_0>=0.5 332  223.9358 1.5931330 *
       7) trig_0>=1.65 935  858.5827 2.3610590
         14) bmi_0_< 1.167619 647  529.2193 1.8556470 *
         15) bmi_0_>=1.167619 288  311.3518 3.4898110 *


$model_list[[2]]$coxmodels
$model_list[[2]]$coxmodels[[1]]
Call:
coxph(formula = as.formula(paste("Surv(df_train$time, df_train$event) ~",
    paste(predict.factors, collapse = "+"))), data = df_train,
    x = TRUE)


                    coef exp(coef) se(coef)      z
sz20_           0.15059   1.16252  0.12400  1.215
pc1_            0.15848   1.17173  0.10005  1.584
pc2_           -0.02463   0.97567  0.10415 -0.237
pc3_            0.10016   1.10535  0.11756  0.852
pc4_           -0.09411   0.91018  0.09636 -0.977
age_            0.10273   1.10819  0.12758  0.805
sex            -0.19871   0.81979  0.23140 -0.859
bmi_0_          0.09784   1.10279  0.34634  0.282
hyp_0           0.55125   1.73543  0.20688  2.665
cvd_0           0.40296   1.49624  0.28918  1.393
B_dep_0         0.35869   1.43145  0.28212  1.271
trig_0          0.15369   1.16613  0.08270  1.858
baseline_hdl    0.16842   1.18343  0.37462  0.450
stroke_0       -0.22277   0.80030  0.61914 -0.360
B_smokstatus_0  0.31922   1.37606  0.27261  1.171
exercise_light -0.46655   0.62716  0.48594 -0.960
exercise_vig   -0.06475   0.93731  0.24379 -0.266
EduLevel_low    0.43551   1.54575  0.36264  1.201
EduLevel_med   -0.13792   0.87117  0.35512 -0.388
wealth_med     -0.05209   0.94925  0.27267 -0.191
wealth_low      0.09561   1.10033  0.27136  0.352
t2dm_           0.17344   1.18939  0.11043  1.571
                      p
sz20_           0.22455
pc1_            0.11319
pc2_            0.81304
pc3_            0.39421
pc4_            0.32872
age_            0.42067
sex             0.39047
bmi_0_          0.77756
hyp_0           0.00771
cvd_0           0.16348
B_dep_0         0.20358
trig_0          0.06313
baseline_hdl    0.65302
stroke_0        0.71899
B_smokstatus_0 0.24159
exercise_light 0.33700
```

```
exercise_vig    0.79056
EduLevel_low    0.22978
EduLevel_med    0.69774
wealth_med      0.84850
wealth_low      0.72460
t2dm_           0.11627


Likelihood ratio test=35.95  on 22 df, p=0.03078
n= 647, number of events= 99


$model_list[[2]]$coxmodels[[2]]
Call:
coxph(formula = as.formula(paste("Surv(df_train$time, df_train$event) ~",
    paste(predict.factors, collapse = "+"))), data = df_train,
    x = TRUE)


                      coef  exp(coef)   se(coef)       z
sz20_            -1.116e-01  8.944e-01  2.387e-01 -0.468
pc1_              1.615e-01  1.175e+00  2.256e-01  0.716
pc2_              1.590e-02  1.016e+00  2.206e-01  0.072
pc3_             -4.436e-01  6.417e-01  2.079e-01 -2.134
pc4_              7.008e-02  1.073e+00  2.066e-01  0.339
age_              2.901e-01  1.337e+00  4.584e-01  0.633
sex              -1.151e-01  8.913e-01  5.060e-01 -0.227
bmi_0_            2.166e+00  8.724e+00  8.149e-01  2.658
hyp_0             0.000e+00  1.000e+00  0.000e+00    NaN
cvd_0             2.407e-01  1.272e+00  7.684e-01  0.313
B_dep_0           5.207e-01  1.683e+00  6.243e-01  0.834
trig_0            4.296e-01  1.537e+00  1.479e-01  2.906
baseline_hdl     -1.099e+00  3.333e-01  7.564e-01 -1.453
stroke_0         -1.463e+01  4.413e-07  4.840e+03 -0.003
B_smokstatus_0    8.309e-01  2.295e+00  4.946e-01  1.680
exercise_light    9.870e-01  2.683e+00  8.379e-01  1.178
exercise_vig     -7.675e-01  4.642e-01  5.759e-01 -1.333
EduLevel_low      1.502e-02  1.015e+00  9.051e-01  0.017
EduLevel_med      4.672e-01  1.595e+00  7.893e-01  0.592
wealth_med        7.379e-01  2.092e+00  6.405e-01  1.152
wealth_low        1.151e+00  3.162e+00  6.734e-01  1.709
t2dm_             2.574e-01  1.294e+00  2.448e-01  1.052
                      p
sz20_            0.64013
pc1_             0.47414
pc2_             0.94253
pc3_             0.03283
pc4_             0.73445
age_             0.52688
sex              0.82009
bmi_0_           0.00786
hyp_0                NaN
cvd_0            0.75404
B_dep_0          0.40432
trig_0           0.00367
baseline_hdl     0.14634
stroke_0         0.99759
B_smokstatus_0   0.09295
exercise_light   0.23885
```

```
exercise_vig    0.18264
EduLevel_low    0.98676
EduLevel_med    0.55395
wealth_med      0.24927
wealth_low      0.08737
t2dm_           0.29290


Likelihood ratio test=49.22  on 22 df, p=0.0007465
n= 1210, number of events= 21


$model_list[[2]]$coxmodels[[3]]
Call:
coxph(formula = as.formula(paste("Surv(df_train$time, df_train$event) ~",
    paste(predict.factors, collapse = "+"))), data = df_train,
    x = TRUE)


                    coef exp(coef) se(coef)      z      p
sz20_            -0.09579   0.90866  0.16380 -0.585 0.5587
pc1_             -0.09406   0.91023  0.17004 -0.553 0.5801
pc2_              0.01446   1.01457  0.16408  0.088 0.9298
pc3_              0.26211   1.29966  0.17155  1.528 0.1265
pc4_              0.12679   1.13518  0.16625  0.763 0.4457
age_             -0.11587   0.89059  0.19466 -0.595 0.5517
sex              -0.19336   0.82418  0.39890 -0.485 0.6279
bmi_0_            0.21568   1.24071  0.23461  0.919 0.3579
hyp_0             0.00000   1.00000  0.00000    NaN    NaN
cvd_0             0.03008   1.03054  0.38657  0.078 0.9380
B_dep_0           0.39772   1.48843  0.42474  0.936 0.3491
trig_0           -0.04110   0.95974  0.59914 -0.069 0.9453
baseline_hdl      0.14173   1.15227  0.59035  0.240 0.8103
stroke_0          0.95290   2.59322  0.52826  1.804 0.0713
B_smokstatus_0    0.09305   1.09752  0.52842  0.176 0.8602
exercise_light    0.05938   1.06118  0.70453  0.084 0.9328
exercise_vig     -0.47726   0.62048  0.42587 -1.121 0.2624
EduLevel_low      1.36325   3.90888  1.06058  1.285 0.1987
EduLevel_med      1.57956   4.85283  1.03535  1.526 0.1271
wealth_med       -0.24672   0.78136  0.44140 -0.559 0.5762
wealth_low       -0.20142   0.81757  0.46127 -0.437 0.6624
t2dm_             0.22344   1.25037  0.16317  1.369 0.1709


Likelihood ratio test=23.83  on 22 df, p=0.3562
n= 332, number of events= 42


$model_list[[2]]$coxmodels[[4]]
Call:
coxph(formula = as.formula(paste("Surv(df_train$time, df_train$event) ~",
    paste(predict.factors, collapse = "+"))), data = df_train,
    x = TRUE)


                    coef   exp(coef)    se(coef)       z
sz20_            2.292e-01  1.258e+00  1.226e-01   1.869
pc1_            -1.993e-01  8.193e-01  1.299e-01  -1.535
pc2_             6.457e-02  1.067e+00  1.277e-01   0.506
pc3_            -3.797e-05  1.000e+00  1.388e-01   0.000
pc4_            -3.164e-02  9.689e-01  1.221e-01  -0.259
age_             1.791e-01  1.196e+00  1.612e-01   1.111
```

```
sex              -4.967e-01  6.085e-01  2.643e-01 -1.879
bmi_0_            3.311e-02  1.034e+00  1.518e-01  0.218
hyp_0            4.453e-01  1.561e+00  2.430e-01  1.832
cvd_0            1.031e-01  1.109e+00  3.779e-01  0.273
B_dep_0          -4.393e-01  6.445e-01  3.464e-01 -1.268
trig_0           -1.347e-01  8.740e-01  1.002e-01 -1.344
baseline_hdl     -2.069e-01  8.131e-01  4.650e-01 -0.445
stroke_0         1.816e-01  1.199e+00  1.080e+00  0.168
B_smokstatus_0   4.695e-01  1.599e+00  3.156e-01  1.488
exercise_light   7.137e-01  2.041e+00  4.413e-01  1.617
exercise_vig     -6.131e-01  5.417e-01  3.389e-01 -1.809
EduLevel_low     8.271e-01  2.287e+00  5.987e-01  1.382
EduLevel_med     7.311e-01  2.077e+00  5.732e-01  1.275
wealth_med       6.232e-02  1.064e+00  3.650e-01  0.171
wealth_low       3.292e-01  1.390e+00  3.603e-01  0.914
t2dm_            4.578e-01  1.581e+00  1.248e-01  3.669
                      p
sz20_            0.061615
pc1_             0.124865
pc2_             0.613080
pc3_             0.999782
pc4_             0.795494
age_             0.266585
sex              0.060228
bmi_0_           0.827411
hyp_0            0.066891
cvd_0            0.785102
B_dep_0          0.204752
trig_0           0.179093
baseline_hdl     0.656348
stroke_0         0.866473
B_smokstatus_0   0.136807
exercise_light   0.105820
exercise_vig     0.070430
EduLevel_low     0.167120
EduLevel_med     0.202179
wealth_med       0.864404
wealth_low       0.360871
t2dm_            0.000243


Likelihood ratio test=48.7  on 22 df, p=0.000877
n= 288, number of events= 79


$model_list[[2]]$coxmodels[[5]]
Call:
coxph(formula = as.formula(paste("Surv(df_train$time, df_train$event) ~",
    paste(predict.factors, collapse = "+"))), data = df_train,
    x = TRUE)


                 coef exp(coef) se(coef)       z      p
sz20_         0.09828   1.10327  0.23663   0.415 0.6779
pc1_          0.06503   1.06719  0.20222   0.322 0.7478
pc2_          0.14379   1.15464  0.25468   0.565 0.5724
pc3_          0.38248   1.46591  0.25822   1.481 0.1386
pc4_          0.24017   1.27146  0.20551   1.169 0.2425
age_         -0.02841   0.97199  0.42720  -0.067 0.9470
```

```
sex              0.44457    1.55983   0.52531   0.846 0.3974
bmi_0_          -0.51606    0.59687   0.50672  -1.018 0.3085
hyp_0            0.00000    1.00000   0.00000     NaN    NaN
cvd_0           -0.04389    0.95706   0.58407  -0.075 0.9401
B_dep_0         -0.68904    0.50206   0.77704  -0.887 0.3752
trig_0          -0.27094    0.76267   0.28359  -0.955 0.3394
baseline_hdl    -1.57191    0.20765   0.76556  -2.053 0.0400
stroke_0         1.42758    4.16862   1.13645   1.256 0.2091
B_smokstatus_0  -1.04822    0.35056   1.13612  -0.923 0.3562
exercise_light  -0.56413    0.56886   1.13336  -0.498 0.6187
exercise_vig    -0.57051    0.56524   0.55867  -1.021 0.3072
EduLevel_low    -0.69629    0.49843   0.76479  -0.910 0.3626
EduLevel_med    -0.75571    0.46968   0.73065  -1.034 0.3010
wealth_med      -0.80665    0.44635   0.71074  -1.135 0.2564
wealth_low       0.94185    2.56472   0.53478   1.761 0.0782
t2dm_            0.57513    1.77735   0.25163   2.286 0.0223


Likelihood ratio test=24.62  on 22 df, p=0.3158
n= 388, number of events= 22


$model_list[[2]]$coxmodels[[6]]
Call:
coxph(formula = as.formula(paste("Surv(df_train$time, df_train$event) ~",
    paste(predict.factors, collapse = "+"))), data = df_train,
    x = TRUE)

                     coef  exp(coef)   se(coef)       z
sz20_           9.289e-02  1.097e+00  2.063e-01   0.450
pc1_           -1.463e-01  8.639e-01  2.686e-01  -0.545
pc2_           -2.042e-01  8.153e-01  2.201e-01  -0.928
pc3_           -2.399e-02  9.763e-01  3.011e-01  -0.080
pc4_            3.974e-01  1.488e+00  2.779e-01   1.430
age_            2.642e-01  1.302e+00  2.838e-01   0.931
sex             1.013e+00  2.754e+00  6.323e-01   1.602
bmi_0_          3.648e-01  1.440e+00  7.854e-01   0.465
hyp_0           0.000e+00  1.000e+00  0.000e+00     NaN
cvd_0          -1.416e+00  2.426e-01  8.281e-01  -1.710
B_dep_0         2.864e-01  1.332e+00  6.598e-01   0.434
trig_0         -1.763e-01  8.384e-01  2.603e-01  -0.677
baseline_hdl   -3.099e+00  4.507e-02  1.096e+00  -2.828
stroke_0       -7.503e-01  4.722e-01  1.221e+00  -0.615
B_smokstatus_0  1.070e+00  2.915e+00  5.098e-01   2.099
exercise_light -1.882e+01  6.724e-09  9.086e+03  -0.002
exercise_vig    1.291e-02  1.013e+00  5.725e-01   0.023
EduLevel_low    1.696e+01  2.319e+07  6.352e+03   0.003
EduLevel_med    1.703e+01  2.479e+07  6.352e+03   0.003
wealth_med      2.841e-01  1.329e+00  6.253e-01   0.454
wealth_low      2.710e-01  1.311e+00  5.996e-01   0.452
t2dm_           3.291e-01  1.390e+00  2.375e-01   1.385
                     p
sz20_          0.65257
pc1_           0.58587
pc2_           0.35363
pc3_           0.93650
pc4_           0.15270
age_           0.35185
```

```
sex              0.10912
bmi_0_           0.64228
hyp_0               NaN
cvd_0            0.08721
B_dep_0          0.66419
trig_0           0.49841
baseline_hdl     0.00468
stroke_0         0.53878
B_smokstatus_0   0.03584
exercise_light   0.99835
exercise_vig     0.98200
EduLevel_low     0.99787
EduLevel_med     0.99786
wealth_med       0.64958
wealth_low       0.65132
t2dm_            0.16593


Likelihood ratio test=35.22  on 22 df, p=0.03671
n= 180, number of events= 23


$model_list[[2]]$coxmodels[[7]]
Call:
coxph(formula = as.formula(paste("Surv(df_train$time, df_train$event) ~",
    paste(predict.factors, collapse = "+"))), data = df_train,
    x = TRUE)


                  coef exp(coef) se(coef)       z
sz20_          -0.22661   0.79723  0.21460 -1.056
pc1_            0.28313   1.32727  0.21177  1.337
pc2_            0.01265   1.01273  0.21288  0.059
pc3_           -0.10797   0.89766  0.23514 -0.459
pc4_           -0.02565   0.97468  0.21155 -0.121
age_            0.68067   1.97520  0.28114  2.421
sex            -1.25094   0.28623  0.55805 -2.242
bmi_0_          0.35824   1.43081  0.64009  0.560
hyp_0           0.00000   1.00000  0.00000    NaN
cvd_0          -0.29740   0.74275  0.70693 -0.421
B_dep_0         0.66770   1.94975  0.64409  1.037
trig_0          0.19843   1.21948  0.71998  0.276
baseline_hdl    0.10308   1.10858  0.72778  0.142
stroke_0        1.94037   6.96136  0.58183  3.335
B_smokstatus_0  0.32365   1.38217  0.85399  0.379
exercise_light  0.32433   1.38310  1.24524  0.260
exercise_vig    0.78886   2.20089  0.48997  1.610
EduLevel_low   -0.69534   0.49891  0.83943 -0.828
EduLevel_med    0.40481   1.49902  0.65799  0.615
wealth_med     -1.40233   0.24602  0.71875 -1.951
wealth_low     -0.36620   0.69336  0.63642 -0.575
t2dm_           0.41556   1.51523  0.26328  1.578
                    p
sz20_          0.290984
pc1_           0.181235
pc2_           0.952622
pc3_           0.646117
pc4_           0.903514
age_           0.015475
```

```
sex            0.024986
bmi_0_         0.575700
hyp_0               NaN
cvd_0          0.673983
B_dep_0        0.299896
trig_0         0.782856
baseline_hdl   0.887370
stroke_0       0.000853
B_smokstatus_0 0.704699
exercise_light 0.794512
exercise_vig   0.107394
EduLevel_low   0.407476
EduLevel_med   0.538404
wealth_med     0.051048
wealth_low     0.565010
t2dm_          0.114467


Likelihood ratio test=35.55  on 22 df, p=0.0339
n= 451, number of events= 22


$model_list[[2]]$coxmodels[[8]]
Call:
coxph(formula = as.formula(paste("Surv(df_train$time, df_train$event) ~",
    paste(predict.factors, collapse = "+"))), data = df_train,
    x = TRUE)


                   coef exp(coef)  se(coef)      z
sz20_          0.092746  1.097183  0.184441  0.503
pc1_           0.163986  1.178198  0.205694  0.797
pc2_          -0.127102  0.880643  0.207556 -0.612
pc3_          -0.174549  0.839836  0.180257 -0.968
pc4_           0.006118  1.006137  0.210580  0.029
age_           0.612737  1.845475  0.249759  2.453
sex           -1.361952  0.256160  0.496555 -2.743
bmi_0_         0.595637  1.814185  0.258399  2.305
hyp_0          0.000000  1.000000  0.000000    NaN
cvd_0         -0.389457  0.677424  0.663163 -0.587
B_dep_0        1.146017  3.145638  0.513666  2.231
trig_0         1.844822  6.326974  0.866991  2.128
baseline_hdl  -0.753566  0.470685  0.794126 -0.949
stroke_0       1.629750  5.102601  1.149722  1.418
B_smokstatus_0 0.019684  1.019879  0.707747  0.028
exercise_light 0.315577  1.371051  0.841838  0.375
exercise_vig   0.321785  1.379588  0.451976  0.712
EduLevel_low  -0.262077  0.769452  0.772722 -0.339
EduLevel_med  -0.268631  0.764426  0.694049 -0.387
wealth_med     1.079594  2.943483  0.525738  2.053
wealth_low    -0.903410  0.405186  0.743985 -1.214
t2dm_          0.515064  1.673745  0.203742  2.528
                     p
sz20_          0.61507
pc1_           0.42532
pc2_           0.54029
pc3_           0.33288
pc4_           0.97682
age_           0.01415
```

```
sex            0.00609
bmi_0_         0.02116
hyp_0             NaN
cvd_0          0.55702
B_dep_0        0.02568
trig_0         0.03335
baseline_hdl   0.34266
stroke_0       0.15633
B_smokstatus_0 0.97781
exercise_light 0.70776
exercise_vig   0.47650
EduLevel_low   0.73449
EduLevel_med   0.69872
wealth_med     0.04003
wealth_low     0.22464
t2dm_          0.01147


Likelihood ratio test=45.2  on 22 df, p=0.002507
n= 483, number of events= 28


$model_list[[2]]$clusters
[1] 1.855647 0.195628 1.593133 3.489811 0.732971 1.530041
[7] 0.623480 0.662366


$model_list[[3]]
$model_list[[3]]$vimp10
        bmi_0_          trig_0          t2dm_
  0.0501911470    0.0105764204    0.0081634803
         hyp_0            pc2_            pc4_
  0.0049587200    0.0041929935    0.0034377043
    wealth_low            age_             sex
  0.0030292219    0.0029134615    0.0022003964
        B_dep_0        stroke_0  exercise_light
  0.0019859550    0.0013853294    0.0009512279
          cvd_0  B_smokstatus_0            pc3_
  0.0007434285    0.0005901883    0.0003876076

$model_list[[3]]$treemodel
n= 3979

node), split, n, deviance, yval
      * denotes terminal node

 1) root 3979 2275.804000 1.0000000
   2) bmi_0_< 0.422484 2698 1074.604000 0.5797049
     4) trig_0< 2.05 2114  686.485500 0.4570699
       8) bmi_0_< -0.041124 1561  422.973300 0.3651620 *
       9) bmi_0_>=-0.041124 553  254.165400 0.7274050 *
     5) trig_0>=2.05 584  368.182300 1.0261840
      10) bmi_0_>=0.3333768 32    1.465301 0.2673493 *
      11) bmi_0_< 0.3333768 552  362.400400 1.0825610 *
   3) bmi_0_>=0.422484 1281 1076.318000 1.9398860
     6) t2dm_< 0.4308968 850  622.564700 1.5261740
      12) trig_0< 1.25 184   68.308610 0.5596226 *
```

```
     13) trig_0>=1.25 666   536.408300 1.8224620 *
    7) t2dm_>=0.4308968 431   434.870600 2.7844210
     14) trig_0< 1.65 203   174.285200 2.0172130 *
     15) trig_0>=1.65 228   254.537800 3.3716600 *


$model_list[[3]]$coxmodels
$model_list[[3]]$coxmodels[[1]]
Call:
coxph(formula = as.formula(paste("Surv(df_train$time, df_train$event) ~",
    paste(predict.factors, collapse = "+"))), data = df_train,
    x = TRUE)


                     coef exp(coef) se(coef)       z
sz20_             0.13296   1.14221  0.11013   1.207
pc1_              0.02041   1.02062  0.10079   0.203
pc2_             -0.34225   0.71017  0.11089  -3.086
pc3_             -0.01998   0.98022  0.09683  -0.206
pc4_             -0.25231   0.77700  0.10830  -2.330
age_             -0.11427   0.89201  0.13621  -0.839
sex              -0.21471   0.80677  0.24152  -0.889
bmi_0_            0.28614   1.33129  0.10597   2.700
hyp_0            0.09465   1.09928  0.21180   0.447
cvd_0            0.43969   1.55223  0.29442   1.493
B_dep_0          -0.12345   0.88387  0.29497  -0.419
trig_0           -0.01500   0.98511  0.07945  -0.189
baseline_hdl     -1.02951   0.35718  0.43012  -2.394
stroke_0         -1.03080   0.35672  1.02758  -1.003
B_smokstatus_0   0.48948   1.63146  0.26104   1.875
exercise_light   0.18226   1.19992  0.42079   0.433
exercise_vig     -0.14373   0.86612  0.24829  -0.579
EduLevel_low     0.32861   1.38904  0.38088   0.863
EduLevel_med     0.16861   1.18366  0.35745   0.472
wealth_med       0.13011   1.13896  0.27841   0.467
wealth_low       0.30394   1.35519  0.27831   1.092
t2dm_            0.31233   1.36661  0.17180   1.818
                       p
sz20_            0.22729
pc1_             0.83951
pc2_             0.00203
pc3_             0.83652
pc4_             0.01982
age_             0.40149
sex              0.37399
bmi_0_           0.00693
hyp_0            0.65495
cvd_0            0.13533
B_dep_0          0.67557
trig_0           0.85025
baseline_hdl     0.01669
stroke_0         0.31580
B_smokstatus_0 0.06078
exercise_light 0.66492
exercise_vig     0.56267
EduLevel_low     0.38827
EduLevel_med     0.63713
wealth_med       0.64026
```

```
wealth_low      0.27480
t2dm_           0.06907


Likelihood ratio test=50.01  on 22 df, p=0.0005854
n= 666, number of events= 102


$model_list[[3]]$coxmodels[[2]]
Call:
coxph(formula = as.formula(paste("Surv(df_train$time, df_train$event) ~",
    paste(predict.factors, collapse = "+"))), data = df_train,
    x = TRUE)


                     coef exp(coef) se(coef)      z
sz20_             0.06677   1.06905  0.18739  0.356
pc1_             -0.15110   0.85976  0.23694 -0.638
pc2_             -0.26560   0.76675  0.20108 -1.321
pc3_             -0.09696   0.90759  0.18418 -0.526
pc4_             -0.07812   0.92485  0.23526 -0.332
age_             -0.11801   0.88868  0.24827 -0.475
sex              -1.29729   0.27327  0.49460 -2.623
bmi_0_            0.54440   1.72357  0.25462  2.138
hyp_0             0.37082   1.44892  0.41074  0.903
cvd_0             0.13821   1.14822  0.53367  0.259
B_dep_0           1.07285   2.92369  0.48199  2.226
trig_0           -0.27628   0.75860  0.78702 -0.351
baseline_hdl      0.53325   1.70446  0.64675  0.825
stroke_0          1.16581   3.20853  0.82619  1.411
B_smokstatus_0    0.34824   1.41657  0.47880  0.727
exercise_light   -0.28443   0.75244  0.84095 -0.338
exercise_vig     -0.27874   0.75673  0.54382 -0.513
EduLevel_low      1.13301   3.10499  0.90371  1.254
EduLevel_med      0.78704   2.19688  0.85591  0.920
wealth_med       -0.48854   0.61352  0.54469 -0.897
wealth_low       -0.10390   0.90132  0.49910 -0.208
t2dm_             0.16237   1.17629  0.34153  0.475
                        p
sz20_             0.72161
pc1_              0.52366
pc2_              0.18654
pc3_              0.59857
pc4_              0.73984
age_              0.63453
sex               0.00872
bmi_0_            0.03251
hyp_0             0.36663
cvd_0             0.79564
B_dep_0           0.02602
trig_0            0.72556
baseline_hdl      0.40965
stroke_0          0.15822
B_smokstatus_0    0.46704
exercise_light    0.73519
exercise_vig      0.60825
EduLevel_low      0.20994
EduLevel_med      0.35781
wealth_med        0.36977
```

```
wealth_low      0.83510
t2dm_           0.63450


Likelihood ratio test=27.59  on 22 df, p=0.1897
n= 203, number of events= 33


$model_list[[3]]$coxmodels[[3]]
Call:
coxph(formula = as.formula(paste("Surv(df_train$time, df_train$event) ~",
    paste(predict.factors, collapse = "+"))), data = df_train,
    x = TRUE)


                     coef  exp(coef)   se(coef)        z
sz20_             6.613e-01  1.937e+00  2.257e-01   2.930
pc1_              1.110e-01  1.117e+00  1.658e-01   0.669
pc2_             -9.100e-02  9.130e-01  1.733e-01  -0.525
pc3_             -4.309e-02  9.578e-01  1.832e-01  -0.235
pc4_             -7.992e-02  9.232e-01  1.631e-01  -0.490
age_              4.390e-01  1.551e+00  2.352e-01   1.867
sex              -7.120e-03  9.929e-01  4.059e-01  -0.018
bmi_0_           -6.880e-02  9.335e-01  1.314e+00  -0.052
hyp_0             9.740e-01  2.648e+00  3.576e-01   2.724
cvd_0            -7.281e-01  4.828e-01  6.548e-01  -1.112
B_dep_0           6.250e-01  1.868e+00  4.622e-01   1.352
trig_0            2.980e-01  1.347e+00  4.817e-01   0.619
baseline_hdl     -4.137e-01  6.612e-01  5.999e-01  -0.690
stroke_0          5.425e-01  1.720e+00  1.133e+00   0.479
B_smokstatus_0    4.355e-01  1.546e+00  5.402e-01   0.806
exercise_light   -1.610e+01  1.018e-07  3.115e+03  -0.005
exercise_vig      7.765e-01  2.174e+00  3.653e-01   2.125
EduLevel_low     -8.240e-01  4.387e-01  6.687e-01  -1.232
EduLevel_med      9.452e-02  1.099e+00  5.328e-01   0.177
wealth_med        6.146e-01  1.849e+00  4.175e-01   1.472
wealth_low       -2.029e-01  8.163e-01  5.260e-01  -0.386
t2dm_             5.191e-01  1.681e+00  2.051e-01   2.531
                     p
sz20_             0.00339
pc1_              0.50343
pc2_              0.59953
pc3_              0.81404
pc4_              0.62409
age_              0.06191
sex               0.98601
bmi_0_            0.95824
hyp_0             0.00646
cvd_0             0.26615
B_dep_0           0.17633
trig_0            0.53612
baseline_hdl      0.49049
stroke_0          0.63217
B_smokstatus_0 0.42013
exercise_light 0.99588
exercise_vig      0.03355
EduLevel_low      0.21788
EduLevel_med      0.85919
wealth_med        0.14102
```

```
wealth_low       0.69963
t2dm_            0.01139


Likelihood ratio test=38.57  on 22 df, p=0.01578
n= 553, number of events= 35


$model_list[[3]]$coxmodels[[4]]
Call:
coxph(formula = as.formula(paste("Surv(df_train$time, df_train$event) ~",
    paste(predict.factors, collapse = "+"))), data = df_train,
    x = TRUE)


                     coef exp(coef) se(coef)       z
sz20_             0.02555   1.02588  0.14731   0.173
pc1_              0.01177   1.01184  0.14653   0.080
pc2_             -0.10114   0.90380  0.14192  -0.713
pc3_             -0.04114   0.95969  0.16094  -0.256
pc4_              0.21048   1.23427  0.12896   1.632
age_              0.23956   1.27069  0.16752   1.430
sex               0.38384   1.46790  0.31636   1.213
bmi_0_            1.05455   2.87068  0.40535   2.602
hyp_0             0.21465   1.23943  0.29176   0.736
cvd_0            -0.17502   0.83944  0.46003  -0.380
B_dep_0           0.30753   1.36006  0.37728   0.815
trig_0           -0.04432   0.95665  0.13036  -0.340
baseline_hdl     -0.02009   0.98011  0.51700  -0.039
stroke_0         -0.61931   0.53832  1.05292  -0.588
B_smokstatus_0    0.54726   1.72852  0.33360   1.640
exercise_light    0.35751   1.42976  0.64097   0.558
exercise_vig     -0.26190   0.76959  0.34030  -0.770
EduLevel_low      0.94115   2.56294  0.65120   1.445
EduLevel_med      0.27985   1.32293  0.64726   0.432
wealth_med        0.13125   1.14025  0.38040   0.345
wealth_low       -0.05333   0.94807  0.38944  -0.137
t2dm_             0.22650   1.25421  0.13957   1.623
                       p
sz20_             0.86230
pc1_              0.93598
pc2_              0.47606
pc3_              0.79823
pc4_              0.10265
age_              0.15272
sex               0.22502
bmi_0_            0.00928
hyp_0             0.46190
cvd_0             0.70361
B_dep_0           0.41500
trig_0            0.73389
baseline_hdl     0.96900
stroke_0         0.55641
B_smokstatus_0   0.10091
exercise_light   0.57700
exercise_vig     0.44152
EduLevel_low     0.14839
EduLevel_med     0.66548
wealth_med       0.73007
```

```
wealth_low      0.89109
t2dm_           0.10462


Likelihood ratio test=34.63  on 22 df, p=0.04229
n= 552, number of events= 53


$model_list[[3]]$coxmodels[[5]]
Call:
coxph(formula = as.formula(paste("Surv(df_train$time, df_train$event) ~",
    paste(predict.factors, collapse = "+"))), data = df_train,
    x = TRUE)


                      coef exp(coef) se(coef)       z
sz20_             -0.03302   0.96752  0.14510 -0.228
pc1_               0.23815   1.26890  0.13701  1.738
pc2_               0.05222   1.05361  0.14252  0.366
pc3_              -0.01932   0.98086  0.13766 -0.140
pc4_               0.05257   1.05397  0.13062  0.402
age_               0.47762   1.61223  0.17114  2.791
sex               -0.70627   0.49348  0.33078 -2.135
bmi_0_            -0.12872   0.87922  0.35548 -0.362
hyp_0              0.76150   2.14148  0.31042  2.453
cvd_0             -0.19167   0.82558  0.44807 -0.428
B_dep_0           -0.43949   0.64436  0.54255 -0.810
trig_0            -0.22853   0.79571  0.40036 -0.571
baseline_hdl      -0.41038   0.66340  0.43835 -0.936
stroke_0           1.33555   3.80207  0.48427  2.758
B_smokstatus_0     0.24323   1.27537  0.42016  0.579
exercise_light    -1.04345   0.35224  1.04982 -0.994
exercise_vig      -0.01494   0.98517  0.32089 -0.047
EduLevel_low       0.68321   1.98022  0.60166  1.136
EduLevel_med       0.84444   2.32668  0.54772  1.542
wealth_med        -0.07732   0.92559  0.35337 -0.219
wealth_low        -0.17185   0.84211  0.38993 -0.441
t2dm_              0.14340   1.15419  0.15710  0.913
                        p
sz20_             0.82001
pc1_              0.08218
pc2_              0.71405
pc3_              0.88836
pc4_              0.68735
age_              0.00526
sex               0.03275
bmi_0_            0.71728
hyp_0             0.01416
cvd_0             0.66882
B_dep_0           0.41791
trig_0            0.56814
baseline_hdl      0.34918
stroke_0          0.00582
B_smokstatus_0 0.56265
exercise_light 0.32026
exercise_vig      0.96286
EduLevel_low      0.25615
EduLevel_med      0.12313
wealth_med        0.82680
```

```
wealth_low      0.65942
t2dm_           0.36136


Likelihood ratio test=48.69  on 22 df, p=0.0008796
n= 1561, number of events= 50


$model_list[[3]]$coxmodels[[6]]
Call:
coxph(formula = as.formula(paste("Surv(df_train$time, df_train$event) ~",
    paste(predict.factors, collapse = "+"))), data = df_train,
    x = TRUE)


                    coef  exp(coef)   se(coef)        z
sz20_           -6.102e-01  5.432e-01  3.891e-01  -1.568
pc1_            -6.174e-01  5.394e-01  4.803e-01  -1.285
pc2_            -7.432e-02  9.284e-01  4.773e-01  -0.156
pc3_             4.674e-01  1.596e+00  5.280e-01   0.885
pc4_             3.082e-01  1.361e+00  4.316e-01   0.714
age_             9.790e-01  2.662e+00  4.865e-01   2.012
sex             -1.190e+00  3.042e-01  1.019e+00  -1.168
bmi_0_          -2.357e-01  7.900e-01  8.526e-01  -0.276
hyp_0            1.047e+00  2.851e+00  9.626e-01   1.088
cvd_0           -1.842e+00  1.586e-01  1.352e+00  -1.362
B_dep_0         -1.953e+01  3.312e-09  1.520e+04  -0.001
trig_0           6.362e+00  5.796e+02  3.707e+00   1.716
baseline_hdl     1.518e+00  4.561e+00  1.236e+00   1.228
stroke_0        -2.039e+01  1.390e-09  4.206e+04   0.000
B_smokstatus_0  -1.832e+01  1.106e-08  1.456e+04  -0.001
exercise_light  -1.885e+01  6.501e-09  3.195e+04  -0.001
exercise_vig    -7.061e-01  4.936e-01  9.686e-01  -0.729
EduLevel_low    -6.542e-01  5.198e-01  1.392e+00  -0.470
EduLevel_med    -8.930e-01  4.094e-01  1.350e+00  -0.662
wealth_med       4.313e-01  1.539e+00  1.187e+00   0.363
wealth_low       2.983e-01  1.348e+00  1.514e+00   0.197
t2dm_           -3.578e-01  6.992e-01  6.561e-01  -0.545
                    p
sz20_           0.1168
pc1_            0.1987
pc2_            0.8763
pc3_            0.3761
pc4_            0.4751
age_            0.0442
sex             0.2427
bmi_0_          0.7822
hyp_0           0.2765
cvd_0           0.1731
B_dep_0         0.9990
trig_0          0.0861
baseline_hdl    0.2194
stroke_0        0.9996
B_smokstatus_0  0.9990
exercise_light  0.9995
exercise_vig    0.4660
EduLevel_low    0.6384
EduLevel_med    0.5083
wealth_med      0.7163
```

```
wealth_low      0.8438
t2dm_           0.5856


Likelihood ratio test=24.55  on 22 df, p=0.319
n= 184, number of events= 9

$model_list[[3]]$coxmodels[[7]]
Call:
coxph(formula = as.formula(paste("Surv(df_train$time, df_train$event) ~",
    paste(predict.factors, collapse = "+"))), data = df_train,
    x = TRUE)

                    coef exp(coef) se(coef)       z      p
sz20_            0.03439   1.03499  0.13551   0.254 0.7997
pc1_            -0.13944   0.86985  0.14376  -0.970 0.3321
pc2_             0.16135   1.17509  0.13241   1.219 0.2230
pc3_             0.17090   1.18638  0.16827   1.016 0.3098
pc4_            -0.17783   0.83709  0.14630  -1.215 0.2242
age_            -0.15115   0.85972  0.19957  -0.757 0.4488
sex             -0.31534   0.72954  0.32603  -0.967 0.3334
bmi_0_           0.08296   1.08650  0.18498   0.448 0.6538
hyp_0            0.54736   1.72868  0.26530   2.063 0.0391
cvd_0            0.22823   1.25637  0.39334   0.580 0.5618
B_dep_0          0.46220   1.58756  0.34814   1.328 0.1843
trig_0          -0.01318   0.98691  0.11884  -0.111 0.9117
baseline_hdl    -0.09273   0.91144  0.58637  -0.158 0.8744
stroke_0         0.60500   1.83125  1.26482   0.478 0.6324
B_smokstatus_0   0.08984   1.09400  0.37902   0.237 0.8126
exercise_light  -0.11120   0.89476  0.53316  -0.209 0.8348
exercise_vig    -0.75435   0.47032  0.35661  -2.115 0.0344
EduLevel_low     0.64763   1.91101  0.54215   1.195 0.2323
EduLevel_med     0.58626   1.79726  0.50649   1.158 0.2471
wealth_med      -0.21363   0.80765  0.38953  -0.548 0.5834
wealth_low       0.28505   1.32983  0.37021   0.770 0.4413
t2dm_            0.03500   1.03562  0.27428   0.128 0.8985


Likelihood ratio test=26.46  on 22 df, p=0.2324
n= 228, number of events= 63

$model_list[[3]]$coxmodels[[8]]
Call:
coxph(formula = as.formula(paste("Surv(df_train$time, df_train$event) ~",
    paste(predict.factors, collapse = "+"))), data = df_train,
    x = TRUE)

            coef exp(coef) se(coef)   z    p
sz20_          0         1        0 NaN NaN
pc1_           0         1        0 NaN NaN
pc2_           0         1        0 NaN NaN
pc3_           0         1        0 NaN NaN
pc4_           0         1        0 NaN NaN
age_           0         1        0 NaN NaN
sex            0         1        0 NaN NaN
bmi_0_         0         1        0 NaN NaN
hyp_0          0         1        0 NaN NaN
cvd_0          0         1        0 NaN NaN
```

```
B_dep_0             0          1          0 NaN NaN
trig_0              0          1          0 NaN NaN
baseline_hdl        0          1          0 NaN NaN
stroke_0            0          1          0 NaN NaN
B_smokstatus_0      0          1          0 NaN NaN
exercise_light      0          1          0 NaN NaN
exercise_vig        0          1          0 NaN NaN
EduLevel_low        0          1          0 NaN NaN
EduLevel_med        0          1          0 NaN NaN
wealth_med          0          1          0 NaN NaN
wealth_low          0          1          0 NaN NaN
t2dm_               0          1          0 NaN NaN

Likelihood ratio test=0  on 22 df, p=1
n= 32, number of events= 0


$model_list[[3]]$clusters
[1] 1.822462 2.017213 0.727405 1.082561 0.365162 0.559623
[7] 3.371660 0.267349



$time
Time difference of 2.178813 mins
```