```
 1 .
 2 . use "E:\16GBBACKUPUSB\BACKUP_USB_SEPTEMBER2014\May Baydoun_folder\UK_BIOBANK_PROJECT\UKB_PAPER8E_ADPRSPROTDEM\D

 3 .
 4 . capture mi stset, clear

 5 . capture mi set, clear

 6 .
 7 . stset Age_dementia, failure(dem_diag==1) enter(AGE) id(n_eid) scale(1)

   Survival-time data settings

              ID variable: n_eid
            Failure event: dem_diag==1
   Observed time interval: (Age_dementia[_n-1], Age_dementia]
        Enter on or after: time AGE
        Exit on or before: failure

   ------------------------------------------------------------------------------
        40,139  total observations
             0  exclusions
   ------------------------------------------------------------------------------
        40,139  observations remaining, representing
        40,139  subjects
         1,167  failures in single-failure-per-subject data
   486,433.58  total analysis time at risk and under observation
                                                 At risk from t =         0
                                      Earliest observed entry t =  50.00137
                                           Last observed exit t =  84.54757

 8 .
 9 . capture drop AD_PGStert

10 . xtile AD_PGStert=AD_PGS if sample_final==1, nq(3)

11 .
12 . save, replace
   file E:\16GBBACKUPUSB\BACKUP_USB_SEPTEMBER2014\May Baydoun_folder\UK_BIOBANK_PROJECT\UKB_PAPER8E_ADPRSPROTDEM\DAT

13 .
14 . ************************************************************OVERALL******************
15 .
16 .
17 . stcox AD_PGS AGE Agesq SEX PC1-PC20  if sample_final==1

            Failure _d: dem_diag==1
      Analysis time _t: Age_dementia
     Enter on or after: time AGE
           ID variable: n_eid

   Iteration 0:  Log likelihood = -11071.497
   Iteration 1:  Log likelihood = -10778.205
   Iteration 2:  Log likelihood = -10756.442
   Iteration 3:  Log likelihood = -10756.237
   Iteration 4:  Log likelihood = -10756.223
   Iteration 5:  Log likelihood = -10756.223
   Iteration 6:  Log likelihood = -10756.223
   Refining estimates:
   Iteration 0:  Log likelihood = -10756.223
```

Cox regression with Breslow method for ties

No. of subjects = **40,139** Number of obs = **40,139**
No. of failures = **1,167**
Time at risk = **486,433.582**
LR chi2(**24**) = **630.55**
Log likelihood = **-10756.223** Prob > chi2 = **0.0000**

| _t | Haz. ratio | Std. err. | z | P>\|z\| | [95% conf. | interval] |
|---|---|---|---|---|---|---|
| AD_PGS | **1.785564** | **.0421175** | **24.58** | **0.000** | **1.704894** | **1.87005** |
| AGE | **.6547773** | **.1339656** | **-2.07** | **0.038** | **.4384703** | **.9777933** |
| Agesq | **1.00361** | **.001611** | **2.25** | **0.025** | **1.000458** | **1.006773** |
| SEX | **.8052458** | **.0473591** | **-3.68** | **0.000** | **.7175738** | **.9036294** |
| PC1 | **1.000886** | **.0007622** | **1.16** | **0.245** | **.9993936** | **1.002381** |
| PC2 | **1.007425** | **.003812** | **1.95** | **0.051** | **.9999809** | **1.014924** |
| PC3 | **1.00723** | **.0063585** | **1.14** | **0.254** | **.9948439** | **1.019769** |
| PC4 | **1.003718** | **.0033796** | **1.10** | **0.270** | **.9971156** | **1.010363** |
| PC5 | **1.006809** | **.0036476** | **1.87** | **0.061** | **.9996847** | **1.013983** |
| PC6 | **1.001621** | **.0107624** | **0.15** | **0.880** | **.9807478** | **1.022939** |
| PC7 | **1.004257** | **.0070937** | **0.60** | **0.548** | **.9904497** | **1.018258** |
| PC8 | **.9992582** | **.0089373** | **-0.08** | **0.934** | **.981894** | **1.01693** |
| PC9 | **1.001279** | **.0066128** | **0.19** | **0.847** | **.9884015** | **1.014324** |
| PC10 | **1.000709** | **.0085682** | **0.08** | **0.934** | **.9840559** | **1.017644** |
| PC11 | **1.018757** | **.0072618** | **2.61** | **0.009** | **1.004624** | **1.03309** |
| PC12 | **.9801365** | **.0083246** | **-2.36** | **0.018** | **.9639557** | **.9965889** |
| PC13 | **1.003753** | **.0165786** | **0.23** | **0.821** | **.9717801** | **1.036778** |
| PC14 | **.9909755** | **.0084133** | **-1.07** | **0.286** | **.9746222** | **1.007603** |
| PC15 | **1.002326** | **.009687** | **0.24** | **0.810** | **.9835182** | **1.021493** |
| PC16 | **.9991464** | **.0089877** | **-0.09** | **0.924** | **.9816853** | **1.016918** |
| PC17 | **.9962695** | **.0123515** | **-0.30** | **0.763** | **.9723527** | **1.020775** |
| PC18 | **1.000361** | **.0098378** | **0.04** | **0.971** | **.9812645** | **1.01983** |
| PC19 | **1.0044** | **.010334** | **0.43** | **0.670** | **.9843485** | **1.02486** |
| PC20 | **1.017189** | **.0106195** | **1.63** | **0.103** | **.9965868** | **1.038217** |

18 .
19 . stcox i.AD_PGStert AGE Agesq SEX PC1-PC20 if sample_final==1

Failure **_d**: **dem_diag==1**
Analysis time **_t**: **Age_dementia**
Enter on or after: **time AGE**
ID variable: **n_eid**

Iteration 0: Log likelihood = **-11071.497**
Iteration 1: Log likelihood = **-10844.855**
Iteration 2: Log likelihood = **-10840.271**
Iteration 3: Log likelihood = **-10840.14**
Iteration 4: Log likelihood = **-10840.133**
Iteration 5: Log likelihood = **-10840.133**
Refining estimates:
Iteration 0: Log likelihood = **-10840.133**

Cox regression with Breslow method for ties

No. of subjects = **40,139** Number of obs = **40,139**
No. of failures = **1,167**
Time at risk = **486,433.582**
LR chi2(**25**) = **462.73**
Log likelihood = **-10840.133** Prob > chi2 = **0.0000**

| _t | Haz. ratio | Std. err. | z | P>\|z\| | [95% conf. | interval] |
|---|---|---|---|---|---|---|
| AD_PGStert | | | | | | |
| 2 | 1.538463 | .1465951 | 4.52 | 0.000 | 1.276377 | 1.854365 |
| 3 | 3.877773 | .3229724 | 16.27 | 0.000 | 3.293726 | 4.565385 |
| AGE | .571585 | .1163266 | -2.75 | 0.006 | .3835728 | .8517532 |
| Agesq | 1.00476 | .0016046 | 2.97 | 0.003 | 1.00162 | 1.007909 |
| SEX | .7941693 | .04669 | -3.92 | 0.000 | .707734 | .8911609 |
| PC1 | 1.000526 | .0007696 | 0.68 | 0.494 | .9990188 | 1.002036 |
| PC2 | 1.007257 | .0038871 | 1.87 | 0.061 | .9996677 | 1.014905 |
| PC3 | 1.00675 | .006458 | 1.05 | 0.294 | .9941719 | 1.019488 |
| PC4 | 1.003829 | .0033881 | 1.13 | 0.258 | .9972099 | 1.010491 |
| PC5 | 1.007271 | .0036621 | 1.99 | 0.046 | 1.000119 | 1.014474 |
| PC6 | 1.000194 | .0108505 | 0.02 | 0.986 | .9791522 | 1.021689 |
| PC7 | 1.003952 | .0071057 | 0.56 | 0.577 | .9901208 | 1.017975 |
| PC8 | .9983147 | .0089941 | -0.19 | 0.851 | .9808414 | 1.016099 |
| PC9 | 1.004598 | .006678 | 0.69 | 0.490 | .9915945 | 1.017773 |
| PC10 | 1.000722 | .0086187 | 0.08 | 0.933 | .9839716 | 1.017758 |
| PC11 | 1.018167 | .007213 | 2.54 | 0.011 | 1.004127 | 1.032402 |
| PC12 | .9823208 | .0082734 | -2.12 | 0.034 | .9662383 | .998671 |
| PC13 | 1.000524 | .0166543 | 0.03 | 0.975 | .9684086 | 1.033704 |
| PC14 | .991387 | .0083925 | -1.02 | 0.307 | .9750738 | 1.007973 |
| PC15 | 1.003094 | .0096156 | 0.32 | 0.747 | .9844239 | 1.022119 |
| PC16 | 1.001982 | .0090315 | 0.22 | 0.826 | .9844357 | 1.01984 |
| PC17 | .9943459 | .0124235 | -0.45 | 0.650 | .970292 | 1.018996 |
| PC18 | 1.0023 | .0098943 | 0.23 | 0.816 | .9830939 | 1.021881 |
| PC19 | 1.001991 | .0102837 | 0.19 | 0.846 | .9820363 | 1.02235 |
| PC20 | 1.013078 | .0104969 | 1.25 | 0.210 | .9927123 | 1.033862 |

```
20 .
21 . ******************************************AMONG MEN************************************
22 .
23 .
24 . stcox AD_PGS AGE Agesq SEX PC1-PC20 if SEX==1 & sample_final==1

          Failure _d: dem_diag==1
    Analysis time _t: Age_dementia
  Enter on or after: time AGE
        ID variable: n_eid

note: SEX omitted because of collinearity.
Iteration 0:  Log likelihood = -5384.3657
Iteration 1:  Log likelihood = -5268.4105
Iteration 2:  Log likelihood = -5261.7885
Iteration 3:  Log likelihood = -5261.6942
Iteration 4:  Log likelihood = -5261.6859
Iteration 5:  Log likelihood = -5261.6858
Iteration 6:  Log likelihood = -5261.6858
Refining estimates:
Iteration 0:  Log likelihood = -5261.6858

Cox regression with Breslow method for ties

No. of subjects =      18,565                     Number of obs = 18,565
No. of failures =         616
Time at risk    = 221,412.168
                                                  LR chi2(23)   = 245.36
Log likelihood = -5261.6858                       Prob > chi2   = 0.0000
```

| _t | Haz. ratio | Std. err. | z | P>\|z\| | [95% conf. | interval] |
|---|---|---|---|---|---|---|
| AD_PGS | 1.642227 | .0539454 | 15.10 | 0.000 | 1.539827 | 1.751436 |
| AGE | .74249 | .2216804 | -1.00 | 0.319 | .4135737 | 1.332994 |
| Agesq | 1.002699 | .002342 | 1.15 | 0.248 | .9981194 | 1.0073 |
| SEX | 1 | (omitted) | | | | |
| PC1 | 1.000561 | .0011929 | 0.47 | 0.638 | .9982261 | 1.002902 |
| PC2 | 1.008459 | .0059981 | 1.42 | 0.157 | .9967709 | 1.020284 |
| PC3 | 1.007513 | .0098017 | 0.77 | 0.442 | .9884844 | 1.026909 |
| PC4 | 1.007091 | .00534 | 1.33 | 0.183 | .9966785 | 1.017611 |
| PC5 | 1.004256 | .005253 | 0.81 | 0.417 | .994013 | 1.014605 |
| PC6 | .9926134 | .0213013 | -0.35 | 0.730 | .9517293 | 1.035254 |
| PC7 | 1.008367 | .0108952 | 0.77 | 0.441 | .9872377 | 1.029949 |
| PC8 | 1.00763 | .0153138 | 0.50 | 0.617 | .9780578 | 1.038096 |
| PC9 | 1.00256 | .0090056 | 0.28 | 0.776 | .9850636 | 1.020367 |
| PC10 | 1.009386 | .0117846 | 0.80 | 0.424 | .986551 | 1.03275 |
| PC11 | 1.011603 | .0104761 | 1.11 | 0.265 | .9912771 | 1.032346 |
| PC12 | .9790129 | .0122986 | -1.69 | 0.091 | .9552025 | 1.003417 |
| PC13 | .9899198 | .023701 | -0.42 | 0.672 | .9445397 | 1.03748 |
| PC14 | .9871031 | .0116382 | -1.10 | 0.271 | .9645542 | 1.010179 |
| PC15 | 1.00707 | .0153719 | 0.46 | 0.644 | .9773879 | 1.037654 |
| PC16 | 1.005722 | .0124105 | 0.46 | 0.644 | .9816899 | 1.030343 |
| PC17 | 1.001131 | .0174139 | 0.07 | 0.948 | .967576 | 1.035851 |
| PC18 | 1.004091 | .0136023 | 0.30 | 0.763 | .9777816 | 1.031108 |
| PC19 | 1.011189 | .0142109 | 0.79 | 0.429 | .9837163 | 1.039429 |
| PC20 | 1.007383 | .0143999 | 0.51 | 0.607 | .9795511 | 1.036005 |

```
25 .
26 .
27 . stcox i.AD_PGStert AGE Agesq SEX PC1-PC20  if SEX==1 & sample_final==1

           Failure _d: dem_diag==1
     Analysis time _t: Age_dementia
   Enter on or after: time AGE
         ID variable: n_eid

note: SEX omitted because of collinearity.
Iteration 0:  Log likelihood = -5384.3657
Iteration 1:  Log likelihood = -5300.2598
Iteration 2:  Log likelihood = -5298.2318
Iteration 3:  Log likelihood = -5298.1471
Iteration 4:  Log likelihood = -5298.1407
Iteration 5:  Log likelihood = -5298.1406
Iteration 6:  Log likelihood = -5298.1406
Refining estimates:
Iteration 0:  Log likelihood = -5298.1406

Cox regression with Breslow method for ties

No. of subjects =      18,565                     Number of obs = 18,565
No. of failures =         616
Time at risk    =  221,412.168
                                                  LR chi2(24)   = 172.45
Log likelihood = -5298.1406                       Prob > chi2   = 0.0000
```

| _t | Haz. ratio | Std. err. | z | P>\|z\| | [95% conf. | interval] |
|---|---|---|---|---|---|---|
| AD_PGStert | | | | | | |
| 2 | 1.543513 | .1899088 | 3.53 | 0.000 | 1.212778 | 1.964443 |
| 3 | 3.118657 | .344221 | 10.30 | 0.000 | 2.511982 | 3.871853 |
| AGE | .6632501 | .1969563 | -1.38 | 0.167 | .3706019 | 1.18699 |
| Agesq | 1.003651 | .002332 | 1.57 | 0.117 | .9990912 | 1.008232 |
| SEX | 1 | (omitted) | | | | |
| PC1 | 1.00011 | .0012295 | 0.09 | 0.929 | .997703 | 1.002523 |
| PC2 | 1.008844 | .0063346 | 1.40 | 0.161 | .9965044 | 1.021336 |
| PC3 | 1.007823 | .0103072 | 0.76 | 0.446 | .9878221 | 1.028228 |
| PC4 | 1.007267 | .0053529 | 1.36 | 0.173 | .9968302 | 1.017813 |
| PC5 | 1.004097 | .0052603 | 0.78 | 0.435 | .99384 | 1.01446 |
| PC6 | .9886081 | .021739 | -0.52 | 0.602 | .9469057 | 1.032147 |
| PC7 | 1.007574 | .0108663 | 0.70 | 0.484 | .9865003 | 1.029099 |
| PC8 | 1.009108 | .0154599 | 0.59 | 0.554 | .9792577 | 1.039869 |
| PC9 | 1.004188 | .0091229 | 0.46 | 0.645 | .9864661 | 1.022229 |
| PC10 | 1.008344 | .0118478 | 0.71 | 0.479 | .9853876 | 1.031834 |
| PC11 | 1.012003 | .0104318 | 1.16 | 0.247 | .9917617 | 1.032657 |
| PC12 | .9794809 | .0122258 | -1.66 | 0.097 | .9558095 | 1.003739 |
| PC13 | .9894582 | .0236139 | -0.44 | 0.657 | .9442416 | 1.03684 |
| PC14 | .9881354 | .011666 | -1.01 | 0.312 | .9655329 | 1.011267 |
| PC15 | 1.00784 | .0153311 | 0.51 | 0.608 | .9782352 | 1.038341 |
| PC16 | 1.0093 | .012509 | 0.75 | 0.455 | .9850784 | 1.034118 |
| PC17 | 1.001717 | .0171584 | 0.10 | 0.920 | .968645 | 1.035917 |
| PC18 | 1.004088 | .0136973 | 0.30 | 0.765 | .9775975 | 1.031296 |
| PC19 | 1.009743 | .0141684 | 0.69 | 0.490 | .9823521 | 1.037898 |
| PC20 | 1.002344 | .0142084 | 0.17 | 0.869 | .9748796 | 1.030583 |

```
28 .
29 .
30 .
31 . ********************************************AMONG WOMEN*************************************
32 .
33 .
34 . stcox AD_PGS AGE Agesq SEX PC1-PC20 if SEX==2 & sample_final==1

          Failure _d: dem_diag==1
    Analysis time _t: Age_dementia
  Enter on or after: time AGE
        ID variable: n_eid

note: SEX omitted because of collinearity.
Iteration 0:  Log likelihood = -4872.6714
Iteration 1:  Log likelihood = -4696.2972
Iteration 2:  Log likelihood = -4677.1514
Iteration 3:  Log likelihood = -4676.8451
Iteration 4:  Log likelihood = -4676.8326
Iteration 5:  Log likelihood = -4676.8326
Iteration 6:  Log likelihood = -4676.8326
Refining estimates:
Iteration 0:  Log likelihood = -4676.8326

Cox regression with Breslow method for ties
```

No. of subjects = **21,574** Number of obs = **21,574**
No. of failures = **551**
Time at risk = **265,021.414**
LR chi2(**23**) = **391.68**
Log likelihood = **-4676.8326** Prob > chi2 = **0.0000**

| _t | Haz. ratio | Std. err. | z | P>\|z\| | [95% conf. | interval] |
|---|---|---|---|---|---|---|
| AD_PGS | **1.960075** | **.0667634** | **19.76** | **0.000** | **1.833494** | **2.095396** |
| AGE | **.5882635** | **.1661555** | **-1.88** | **0.060** | **.3381811** | **1.02328** |
| Agesq | **1.00437** | **.0022321** | **1.96** | **0.050** | **1.000005** | **1.008755** |
| SEX | **1** | (omitted) | | | | |
| PC1 | **1.000792** | **.0010601** | **0.75** | **0.455** | **.998716** | **1.002871** |
| PC2 | **1.008542** | **.005399** | **1.59** | **0.112** | **.9980157** | **1.01918** |
| PC3 | **1.009098** | **.0092106** | **0.99** | **0.321** | **.9912057** | **1.027312** |
| PC4 | **1.001986** | **.0046045** | **0.43** | **0.666** | **.993002** | **1.011052** |
| PC5 | **1.008209** | **.0051354** | **1.61** | **0.108** | **.9981936** | **1.018324** |
| PC6 | **1.003576** | **.0117154** | **0.31** | **0.760** | **.9808747** | **1.026802** |
| PC7 | **.9999333** | **.0096312** | **-0.01** | **0.994** | **.9812335** | **1.018989** |
| PC8 | **.9952887** | **.0112596** | **-0.42** | **0.676** | **.9734631** | **1.017604** |
| PC9 | **.997813** | **.0097874** | **-0.22** | **0.823** | **.9788132** | **1.017182** |
| PC10 | **.9882082** | **.0131415** | **-0.89** | **0.372** | **.9627841** | **1.014304** |
| PC11 | **1.027868** | **.0104878** | **2.69** | **0.007** | **1.007517** | **1.048631** |
| PC12 | **.9799229** | **.0120969** | **-1.64** | **0.100** | **.9564978** | **1.003922** |
| PC13 | **1.019316** | **.023814** | **0.82** | **0.413** | **.9736943** | **1.067076** |
| PC14 | **.9961197** | **.0122517** | **-0.32** | **0.752** | **.9723938** | **1.020424** |
| PC15 | **.9997579** | **.0126962** | **-0.02** | **0.985** | **.9751809** | **1.024954** |
| PC16 | **.9902028** | **.013205** | **-0.74** | **0.460** | **.9646567** | **1.016425** |
| PC17 | **.9927977** | **.0173679** | **-0.41** | **0.679** | **.9593341** | **1.027429** |
| PC18 | **.9944212** | **.0143172** | **-0.39** | **0.698** | **.9667522** | **1.022882** |
| PC19 | **.996616** | **.0150991** | **-0.22** | **0.823** | **.9674574** | **1.026654** |
| PC20 | **1.027889** | **.0157406** | **1.80** | **0.072** | **.9974966** | **1.059208** |

```
35 .
36 .
37 . stcox i.AD_PGStert AGE Agesq SEX PC1-PC20  if SEX==2 & sample_final==1

          Failure _d: dem_diag==1
    Analysis time _t: Age_dementia
  Enter on or after: time AGE
        ID variable: n_eid

note: SEX omitted because of collinearity.
Iteration 0:  Log likelihood = -4872.6714
Iteration 1:  Log likelihood = -4726.6972
Iteration 2:  Log likelihood = -4722.8997
Iteration 3:  Log likelihood = -4722.6755
Iteration 4:  Log likelihood = -4722.6686
Iteration 5:  Log likelihood = -4722.6686
Refining estimates:
Iteration 0:  Log likelihood = -4722.6686

Cox regression with Breslow method for ties

No. of subjects =      21,574                     Number of obs =    21,574
No. of failures =         551
Time at risk    =  265,021.414
                                                  LR chi2(24)   =    300.01
Log likelihood = -4722.6686                       Prob > chi2   =    0.0000
```

| _t | Haz. ratio | Std. err. | z | P>\|z\| | [95% conf. | interval] |
|---|---|---|---|---|---|---|
| AD_PGStert | | | | | | |
| 2 | **1.524769** | **.2299727** | **2.80** | **0.005** | **1.134545** | **2.049209** |
| 3 | **5.021316** | **.6449242** | **12.56** | **0.000** | **3.903836** | **6.458677** |
| AGE | **.4967587** | **.1395063** | **-2.49** | **0.013** | **.2864837** | **.8613726** |
| Agesq | **1.005801** | **.0022228** | **2.62** | **0.009** | **1.001454** | **1.010167** |
| SEX | **1** | (omitted) | | | | |
| PC1 | **1.000619** | **.0010718** | **0.58** | **0.564** | **.9985203** | **1.002722** |
| PC2 | **1.007332** | **.0054969** | **1.34** | **0.181** | **.9966155** | **1.018163** |
| PC3 | **1.007001** | **.0093728** | **0.75** | **0.454** | **.9887968** | **1.02554** |
| PC4 | **1.001846** | **.0046527** | **0.40** | **0.691** | **.9927685** | **1.011007** |
| PC5 | **1.009617** | **.0051696** | **1.87** | **0.062** | **.9995359** | **1.019801** |
| PC6 | **1.001918** | **.0111761** | **0.17** | **0.864** | **.9802511** | **1.024064** |
| PC7 | **.9995861** | **.009687** | **-0.04** | **0.966** | **.9807791** | **1.018754** |
| PC8 | **.992889** | **.0112867** | **-0.63** | **0.530** | **.9710121** | **1.015259** |
| PC9 | **1.003182** | **.0098201** | **0.32** | **0.746** | **.9841186** | **1.022615** |
| PC10 | **.9894678** | **.0134411** | **-0.78** | **0.436** | **.9634714** | **1.016166** |
| PC11 | **1.026168** | **.0104109** | **2.55** | **0.011** | **1.005964** | **1.046777** |
| PC12 | **.9859107** | **.0120389** | **-1.16** | **0.245** | **.962595** | **1.009791** |
| PC13 | **1.010639** | **.0236802** | **0.45** | **0.652** | **.9652758** | **1.058133** |
| PC14 | **.9955995** | **.0121278** | **-0.36** | **0.717** | **.9721109** | **1.019656** |
| PC15 | **1.001278** | **.0125397** | **0.10** | **0.919** | **.9770002** | **1.02616** |
| PC16 | **.9916334** | **.013152** | **-0.63** | **0.526** | **.9661881** | **1.017749** |
| PC17 | **.9864864** | **.0179497** | **-0.75** | **0.455** | **.9519256** | **1.022302** |
| PC18 | **.9999589** | **.0143284** | **-0.00** | **0.998** | **.9722665** | **1.02844** |
| PC19 | **.9924562** | **.0149606** | **-0.50** | **0.615** | **.9635629** | **1.022216** |
| PC20 | **1.026343** | **.0156282** | **1.71** | **0.088** | **.9961648** | **1.057435** |

```
38 .
39 .
40 . capture log close
```