**Supplementary material.**

**List of models screened in each gender**

|  |  |  |
| --- | --- | --- |
| Mean trajectory of the population | Group-specific trajectory\*(class *k*) | Subject-specific trajectory(random effects for subject *i*) |
| *β0* | *α0k* | *u0ki* |
| *β0*+*β1*Time | *α0k* | *u0ki* |
| *β0*+*β1*Time | *α0k* | *u0ki* + *u1ki* Time |
| *β0*+*β1*Time | *α0k*+*α1k*Time | *u0ki* |
| *β0*+*β1*Time | *α0k*+*α1k*Time | *u0ki* + *u1ki* Time |
| *β0*+*β1*Time+*β2*Time2 | *α0k* | *u0ik* |
| *β0*+*β1*Time+*β2*Time2 | *α0k* | *u0ki* + *u1ki*Time |
| *β0*+*β1*Time+*β2*Time2 | *α0k* | *u0ki* + *u1ki*Time+ *u2ki*Time2 |
| *β0*+*β1*Time+*β2*Time2 | *α0k*+*α1k*Time | *u0ki* |
| *β0*+*β1*Time+*β2*Time2 | *α0k*+*α1k*Time | *u0ki* + *u1ki*Time |
| *β0*+*β1*Time+*β2*Time2 | *α0k*+*α1k*Time | *u0ki* + *u1ki* Time+ *u2ki*Time2 |
| *β0*+*β1*Time+*β2*Time2 | *α0k*+*α1k*Time+*α2k*Time2 | *u0ki* |
| *β0*+*β1*Time+*β2*Time2 | *α0k*+*α1k*Time+*α2k*Time2 | *u0ki* + *u1ki*Time |
| *β0*+*β1*Time+*β2*Time2 | *α0k*+*α1k*Time+*α2k*Time2 | *u0ki* + *u1ki*Time+ *u2ki*Time2 |

\* for 2 groups or more.

For each model a diagonal or unstructured random-effect covariance matrix and a class-specific or proportional random-effect covariance matrix were tested (4 possibilities).

The total number of models tested is therefore: 14\*4 for 4 groups + 14\*4 for 3 groups + 14\*4 for 2 groups + 12 for 1 group = 180 models

**Class-specific linear mixed models at the maximum likelihood estimates.**

MEN

**Class 1:** (lower curve)

$$ Y\_{ij\_{1}}^{\*}=-0.292×Time\_{ij}+0.019×Time\_{ij}^{2}+u\_{0i}+ϵ\_{ij}$$

With:

$$ϵ\_{ij}\~N(0,σ\_{ϵ}^{2})$$

$u\_{0i}\~N\left(0,G\_{1}\right) $and $G\_{1}=0.569×(1.739)$

**Class 2:** (upper curve)

$$ Y\_{ij\_{2}}^{\*}=0.381-0.084×Time\_{ij}+0.019×Time\_{ij}^{2}+u\_{0i}+ϵ\_{ij}$$

With:

$$ϵ\_{ij}\~N(0,σ\_{ϵ}^{2})$$

$u\_{0i}\~N\left(0,G\_{2}\right) $and $G\_{2}=1.739$

WOMEN

**Class 1:** (lower curve)

$$Y\_{ij\_{1}^{ }}^{\*}^{ }=-0.867-0.229×Time\_{ij}+0.010×Time\_{ij}^{2}+u\_{0i}+u\_{1i}×Time\_{ij}+u\_{2i}×Time\_{ij}^{2}+ϵ\_{ij}$$

With:

 $ ϵ\_{ij}\~N(0,σ\_{ϵ}^{2})$

$$\left(u\_{0i},u\_{1i},u\_{2i}\right)\~N\left(0,G\right) $$

$$G=\left(\begin{matrix} 0.540& 0.081&-0.012\\ 0.081& 0.242&-0.003\\-0.012&-0.003& 0.0005 \end{matrix}\right)$$

**Class 2:** (upper curve)

$$Y\_{ij\_{2}}^{\*}=-0.104×Time\_{ij}+0.010×Time\_{ij}^{2}+u\_{0i}+u\_{1i}×Time\_{ij}+u\_{2i}×Time\_{ij}^{2}+ϵ\_{ij}$$

With:

 $ϵ\_{ij}\~N(0,σ\_{ϵ}^{2})$

$$\left(u\_{0i},u\_{1i},u\_{2i}\right)\~N\left(0,G\right) $$

$G=\left(\begin{matrix} 0.540& 0.081&-0.012\\ 0.081& 0.242&-0.003\\-0.012&-0.003& 0.0005 \end{matrix}\right)$

$ Y\_{ij}^{\*}$ being the CES-D score for the subject *i* at the time point *j* transformed using abeta cumulative distribution function (parameters of the transformation were estimated simultaneously with the parameters of the latent class mixed model). The predictions in the original CES-D scale and their 95% confidence band given in the plots of estimated trajectories were obtained by a Monte Carlo approximation with 2000 draws.