Denmark_F_1890_post.csv_run_21_20250529_152518

May 29, 2025

```
/Users/navehr/Dropbox/naveh/weizmann/uri alon/aging/code_3
```

```
Loading file from: /Users/navehr/Dropbox/naveh/weizmann/uri alon/aging/code_3/ba
ysian02/posterior_csvs_baysian01/HUMANS/Denmark_F_1890_post.csv
```

```
Reading Humans_F
```

1 # 1. Density coner plot

A sample is 1 parameter set scanned. For the corner plot below, the quantiles (represented by the solid lines) are 0.16,0.5,0.84 of the samples. Dots represent individual samples (outside the line surrounding 0.84 of the samples) The parameter search is performed in the transformed space of x_c/η, β/η, x_c^2/ϵ, x_c but we also show the regular parameters

```
(25,)
```
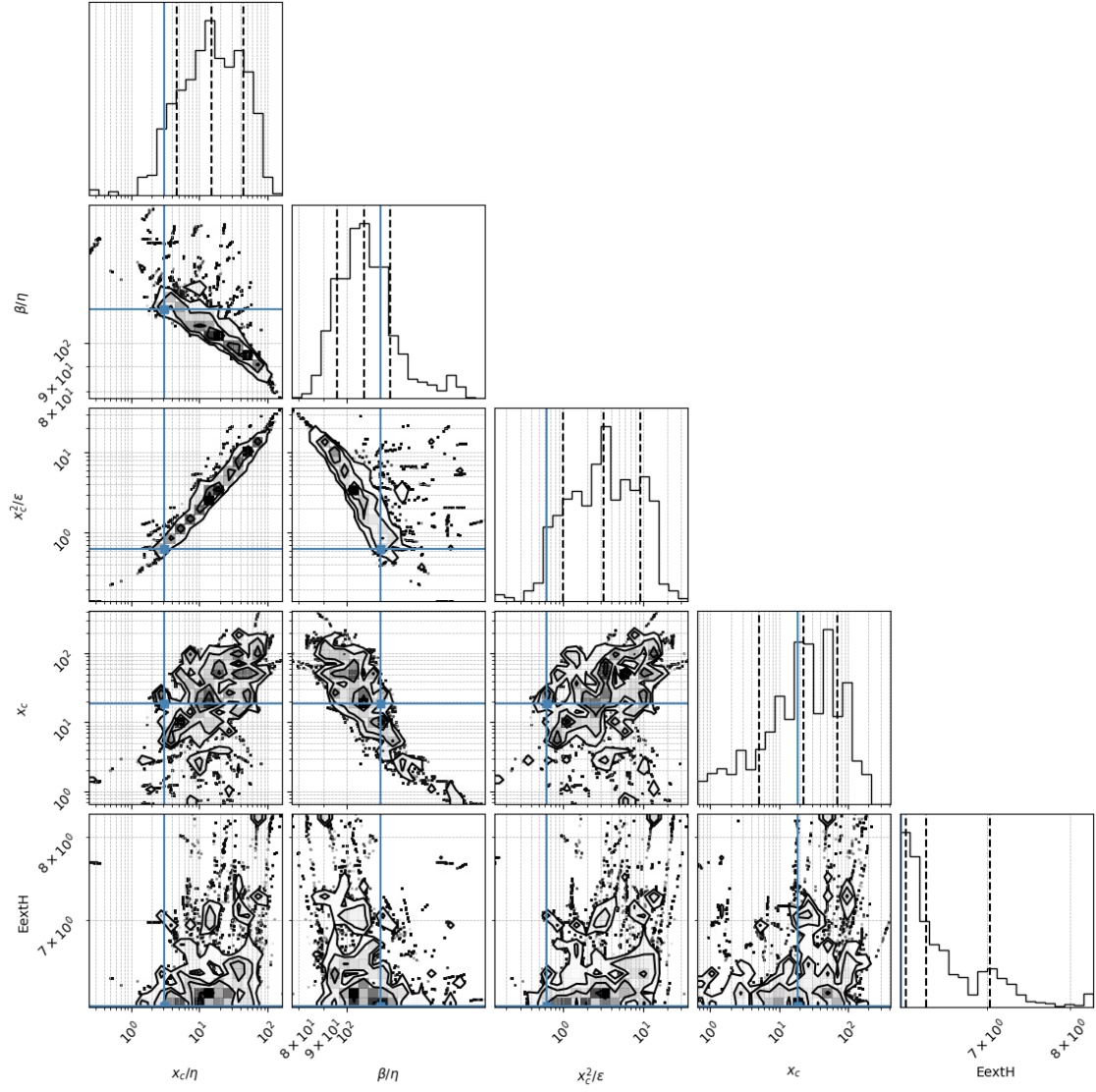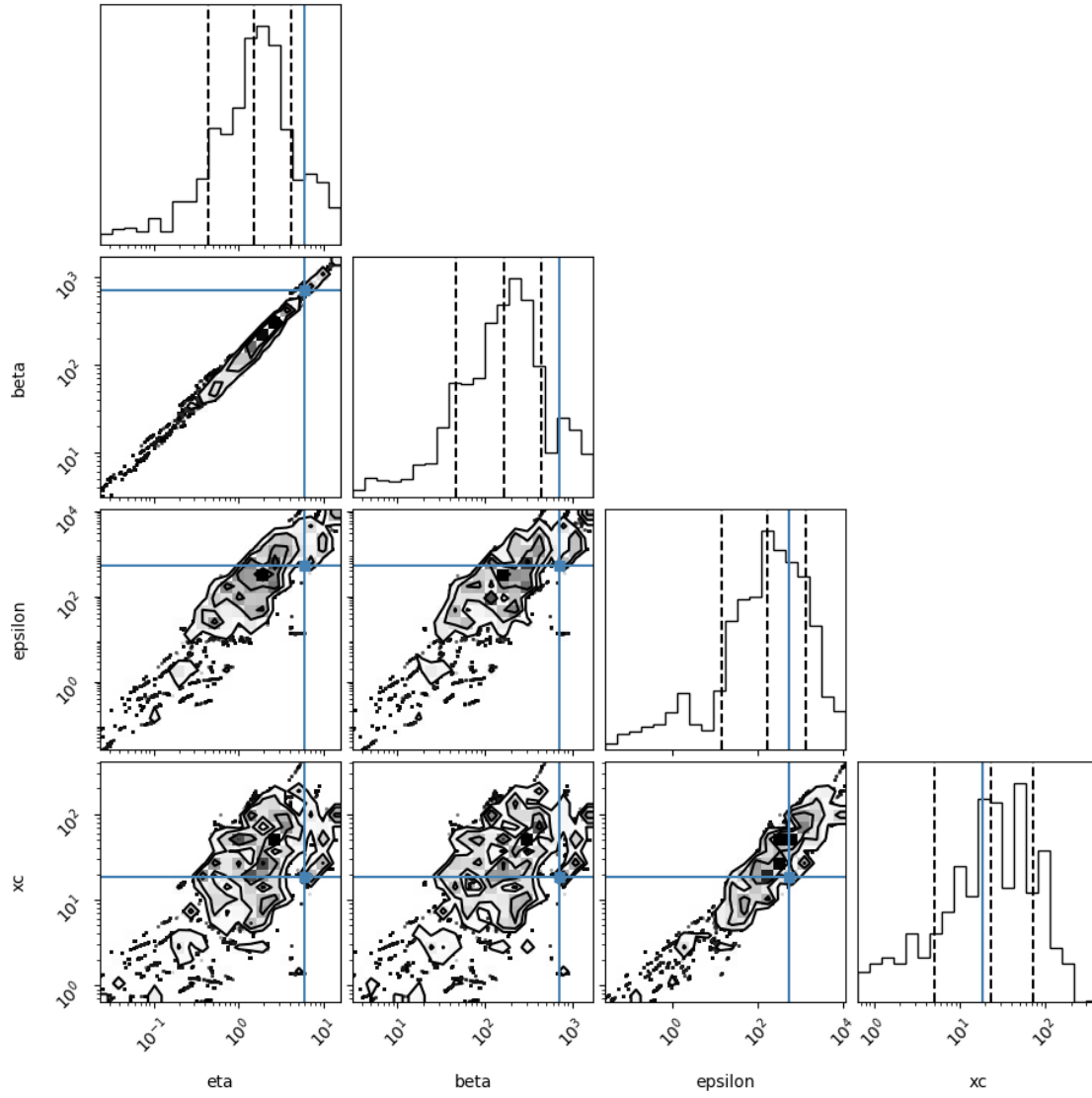
2   2. Heat map corner plot of raw samples

This plot shows all the raw sample points and their lnprobability
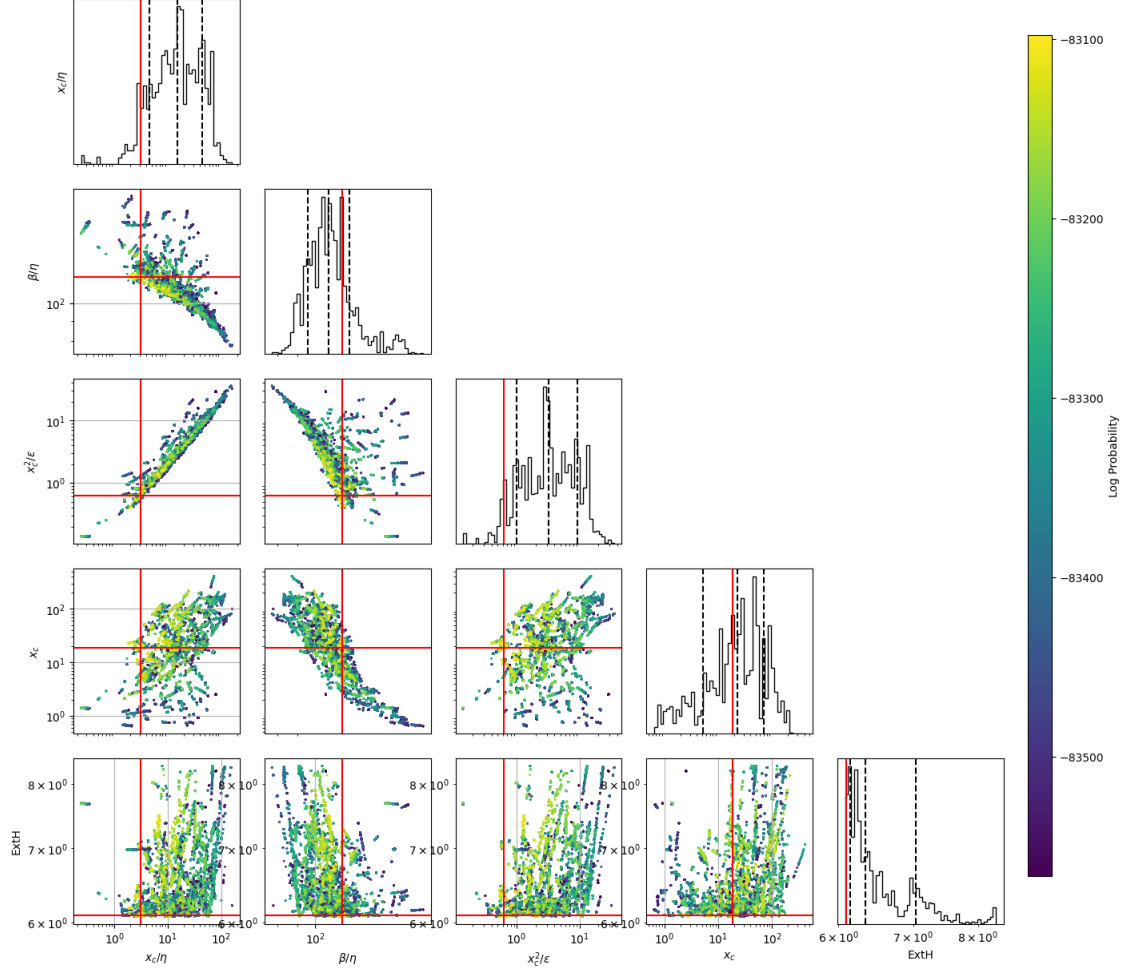
3 3. Posterior distributions of parameters

1d marginalizations of posterior distributions. we use a grid of size nbins=100-150

5
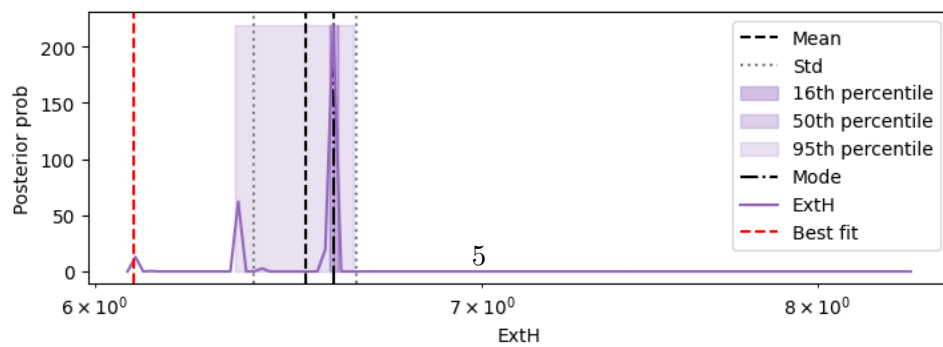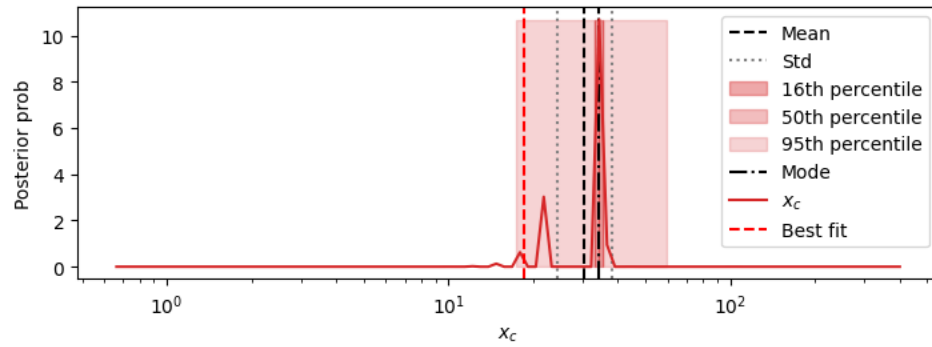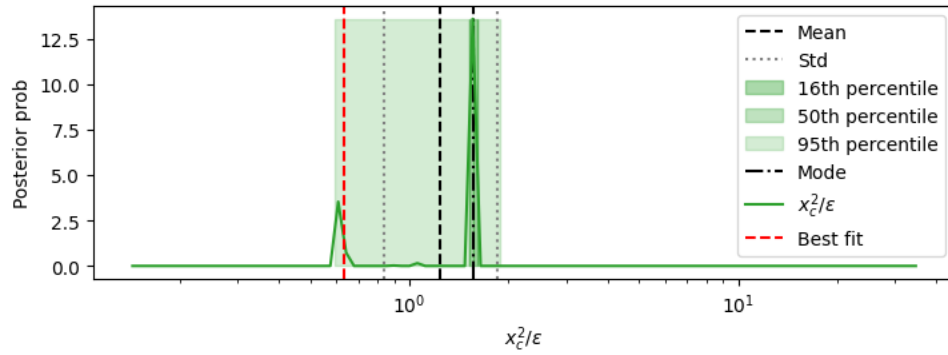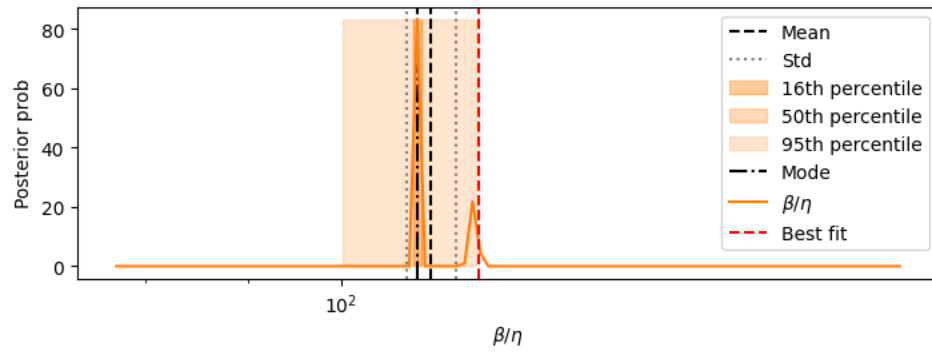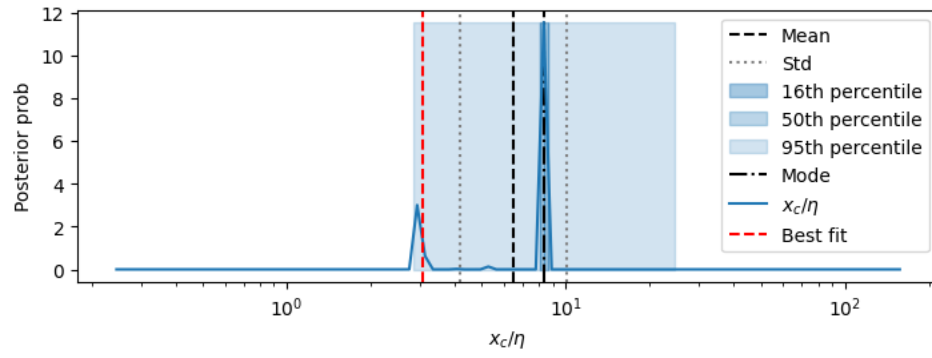
2D marginalizations of posterior distributions

2D Marginalized Posterior

`Rescaling the samples TIME by 365`

4   4. Table of results

mode is the marginalized mode, max_likwlihood is the sample with highest likelihood mode_overall is the 4D posterior mode

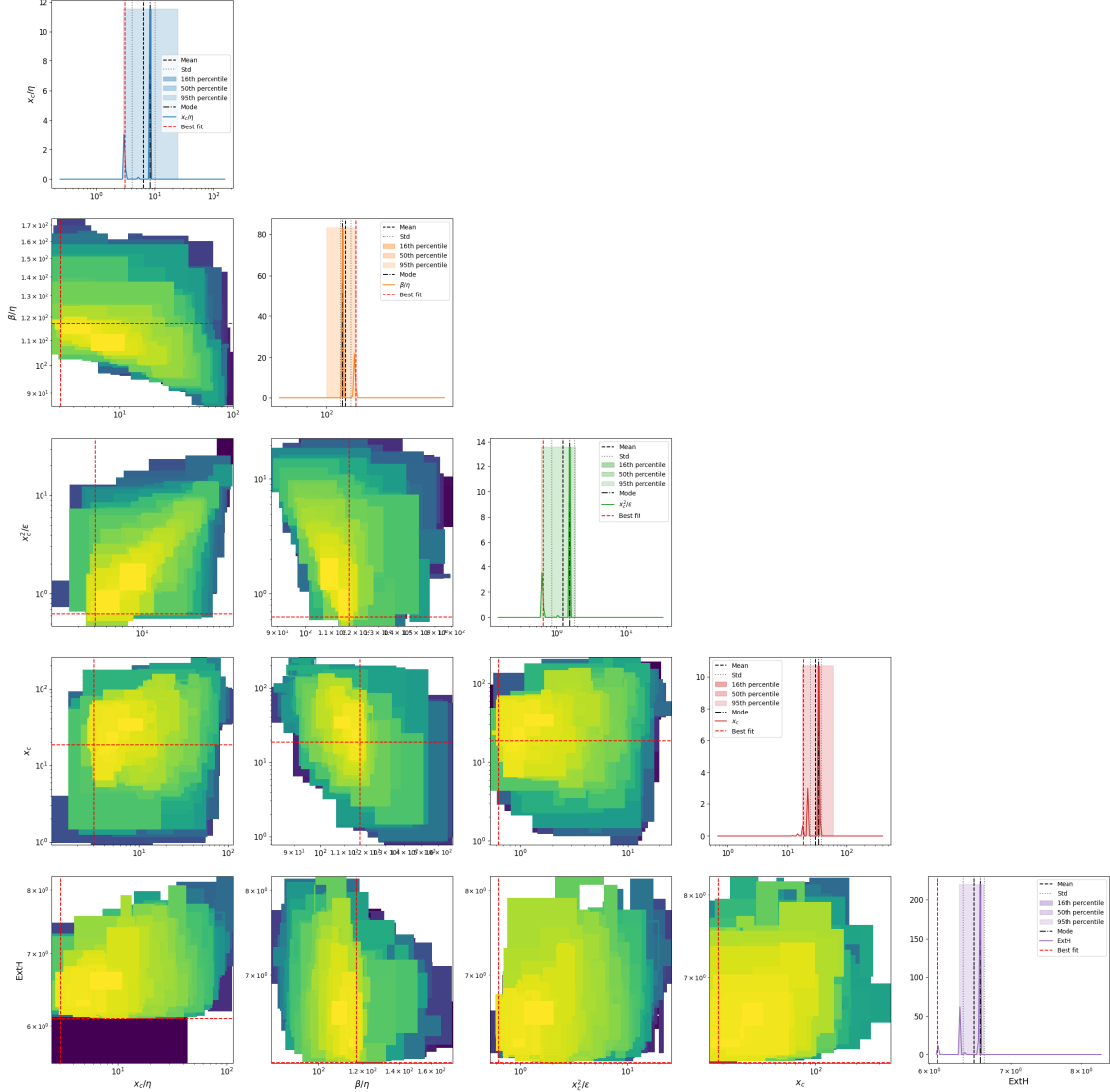|	mean	std	mode \
xc/eta	6.491	[3.58, 2.307]	2.932
beta/eta	110.864	[3.131, 3.045]	117.3
xc^2/epsilon	1.244	[0.605, 0.407]	0.678
xc	30.424	[7.69, 6.138]	20.437
ExtH	6.525	[0.136, 0.133]	6.079
eta	6.776	[2.309, 1.722]	2.827
beta	747.43	[266.944, 196.695]	304.933
epsilon	745.59	[218.493, 168.975]	164.467
sqrt(xc/eta)	1.917	[0.444, 0.36]	1.712
s= eta^0.5*xc^1.5/epsilon	0.387	[0.0759, 0.0634]	0.464
beta*xc/epsilon	23.368	[1.163, 1.108]	24.495
eta*xc/epsilon	0.205	[0.00622, 0.00604]	0.204
Fx=beta^2/eta*xc	3546.335	[2267.491, 1383.131]	4725.081
Dx =beta*epsilon/eta*xc^2	152.127	[80.343, 52.576]	117.908
Pk=beta*k/epsilon	0.506	[0.166, 0.125]	0.596
Fk=beta^2/eta*k	172360.558	[65202.354, 47306.686]	72819.523
Dk =beta*epsilon/eta*k^2	335663.383	[89005.212, 70350.836]	357238.954
Fk^2/Dk=beta^3/eta*epsilon	54996.797	[46799.943, 25284.179]	90969.336
epsilon/beta^2	0.00138	[0.000958, 0.000566]	0.00111
k/beta	0.000671	[0.000245, 0.000179]	0.00164
k^2/epsilon	0.000337	[0.000109, 8.22e-05]	0.00152
best fit_MedianLifetime	74.99	0.51	74.99
best fit_MaxLifetime	110.0	0	110.0
data_MedianLifetime	71.0	0.51	71.0
data_MaxLifetime	108.0	0	108.0

	percentile_16	percentile_50 \
xc/eta	[2.838, 3.029]	[2.838, 3.029]
beta/eta	[116.771, 117.831]	[116.771, 117.831]
xc^2/epsilon	[0.66, 0.697]	[0.624, 0.737]
xc	[19.786, 21.109]	[19.786, 22.52]
ExtH	[6.069, 6.088]	[6.069, 6.108]
eta	[2.736, 2.92]	[2.563, 2.92]
beta	[295.438, 314.732]	[277.327, 335.286]
epsilon	[154.12, 175.509]	[154.12, 199.867]
sqrt(xc/eta)	[1.685, 1.74]	[1.685, 1.74]
s= eta^0.5*xc^1.5/epsilon	[0.457, 0.47]	[0.457, 0.484]
beta*xc/epsilon	[24.207, 24.787]	[23.64, 25.989]
eta*xc/epsilon	[0.203, 0.206]	[0.203, 0.21]
Fx=beta^2/eta*xc	[4542.87, 4914.6]	[4542.87, 4914.6]
Dx =beta*epsilon/eta*xc^2	[114.259, 121.674]	[114.259, 129.571]
Pk=beta*k/epsilon	[0.571, 0.622]	[0.524, 0.622]
Fk=beta^2/eta*k	[70558.522, 75152.976]	[66244.949, 75152.976]
Dk =beta*epsilon/eta*k^2	[335474.064, 380415.906]	[335474.064, 431378.39]
Fk^2/Dk=beta^3/eta*epsilon	[86699.068, 95449.932]	[86699.068, 105084.054]
epsilon/beta^2	[0.00106, 0.00116]	[0.00106, 0.00139]

k/beta	[0.00159, 0.00169]	[0.0014, 0.0018]
k^2/epsilon	[0.00142, 0.00162]	[0.00142, 0.00162]
best fit_MedianLifetime	[74.5, 75.5]	[74.5, 75.5]
best fit_MaxLifetime	[110.0, 110.0]	[110.0, 110.0]
data_MedianLifetime	[70.5, 71.51]	[70.5, 71.51]
data_MaxLifetime	[108.0, 108.0]	[108.0, 108.0]

	percentile_95	max_likelihood \
xc/eta	[2.658, 3.233]	3.057
beta/eta	[114.679, 119.981]	117.061
xc^2/epsilon	[0.624, 1.028]	0.631
xc	[9.712, 45.88]	18.489
ExtH	[6.069, 6.363]	6.093
eta	[2.249, 3.791]	6.049
beta	[64.727, 922.579]	708.088
epsilon	[135.337, 227.606]	542.144
sqrt(xc/eta)	[1.63, 1.858]	1.748
s= eta^0.5*xc^1.5/epsilon	[0.366, 0.605]	0.361
beta*xc/epsilon	[21.0, 26.612]	24.148
eta*xc/epsilon	[0.196, 0.217]	0.206
Fx=beta^2/eta*xc	[1510.5, 5751.801]	4483.132
Dx =beta*epsilon/eta*xc^2	[94.616, 188.957]	185.649
Pk=beta*k/epsilon	[0.481, 0.678]	0.653
Fk=beta^2/eta*k	[42596.686, 193596.19]	165778.88
Dk =beta*epsilon/eta*k^2	[65442.913, 1719710.237]	253855.816
Fk^2/Dk=beta^3/eta*epsilon	[59015.983, 115690.585]	108260.813
epsilon/beta^2	[0.000889, 0.0034]	0.00108
k/beta	[0.000542, 0.00725]	0.000706
k^2/epsilon	[0.0011, 0.00184]	0.000461
best fit_MedianLifetime	[74.5, 75.5]	74.99
best fit_MaxLifetime	[110.0, 110.0]	110.0
data_MedianLifetime	[70.5, 71.51]	71.0
data_MaxLifetime	[108.0, 108.0]	108.0

	mode_overall
xc/eta	8.186
beta/eta	109.354
xc^2/epsilon	1.6
xc	34.347
ExtH	6.6
eta	7.782
beta	900.779
epsilon	832.751
sqrt(xc/eta)	1.692
s= eta^0.5*xc^1.5/epsilon	0.352
beta*xc/epsilon	24.096
eta*xc/epsilon	0.208

```
Fx=beta^2/eta*xc                  4680.872
Dx =beta*epsilon/eta*xc^2           194.26
Pk=beta*k/epsilon                    0.541
Fk=beta^2/eta*k                 208544.138
Dk =beta*epsilon/eta*k^2        322525.078
Fk^2/Dk=beta^3/eta*epsilon       31218.497
epsilon/beta^2                     0.00103
k/beta                           0.000555
k^2/epsilon                        0.0003
best fit_MedianLifetime               NaN
best fit_MaxLifetime                  NaN
data_MedianLifetime                   NaN
data_MaxLifetime                      NaN
```

5   5. Fits of simulations to data

best params is the sample with highest likelihood. mode trans is the 4D posterior mode in the transformed space of x_c/η, β/η, x_c^2/ϵ, x_c

Death Times Distribution