Denmark_M_1900_homo_post.csv_run_17_20250529_151448

May 29, 2025

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/Users/navehr/Dropbox/naveh/weizmann/uri alon/aging/code_3
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Loading file from: /Users/navehr/Dropbox/naveh/weizmann/uri alon/aging/code_3/ba
ysian02/posterior_csvs_baysian01/HUMANS/Denmark_M_1900_homo_post.csv
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Reading Humans_M
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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

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(25,)
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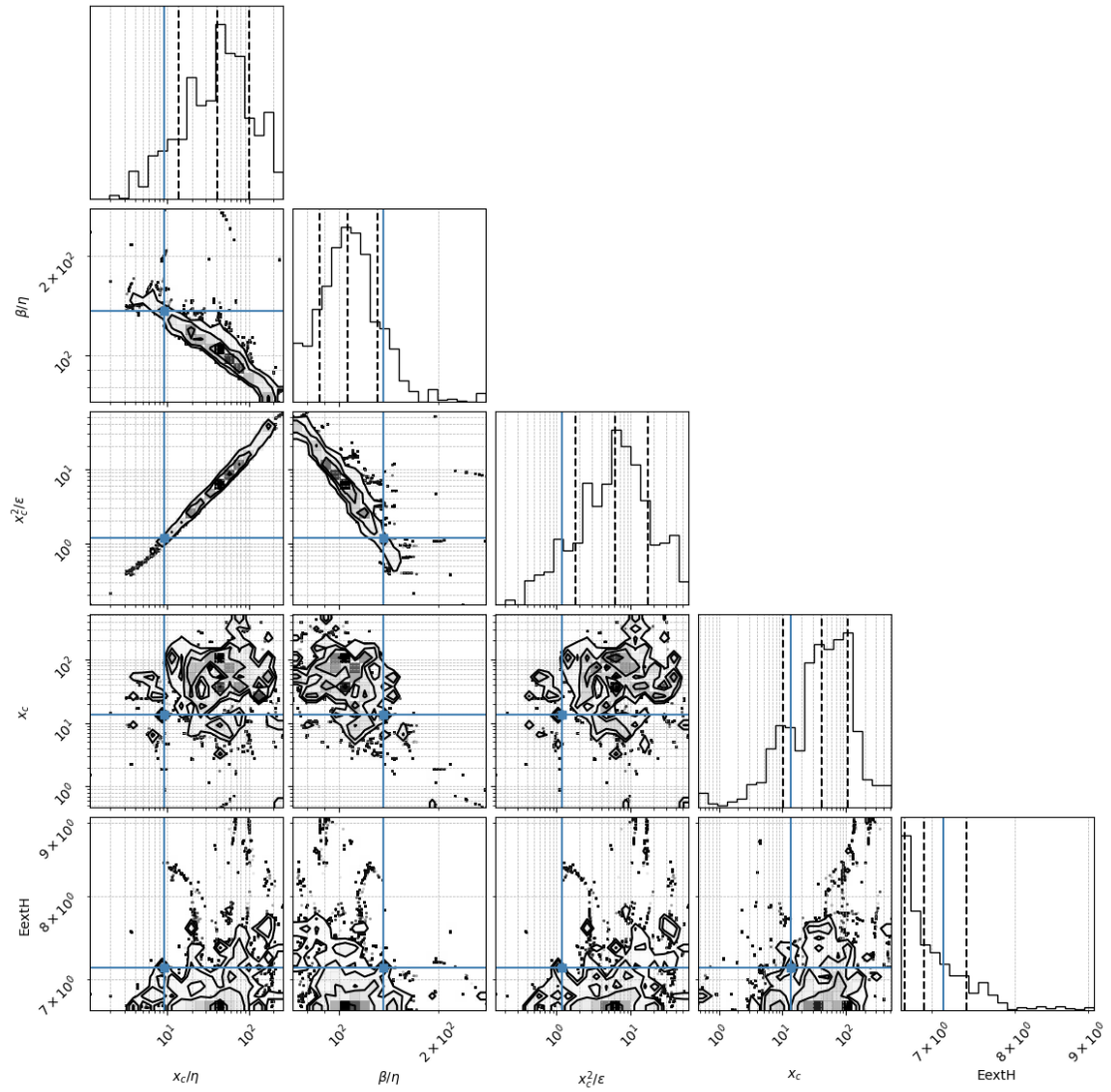
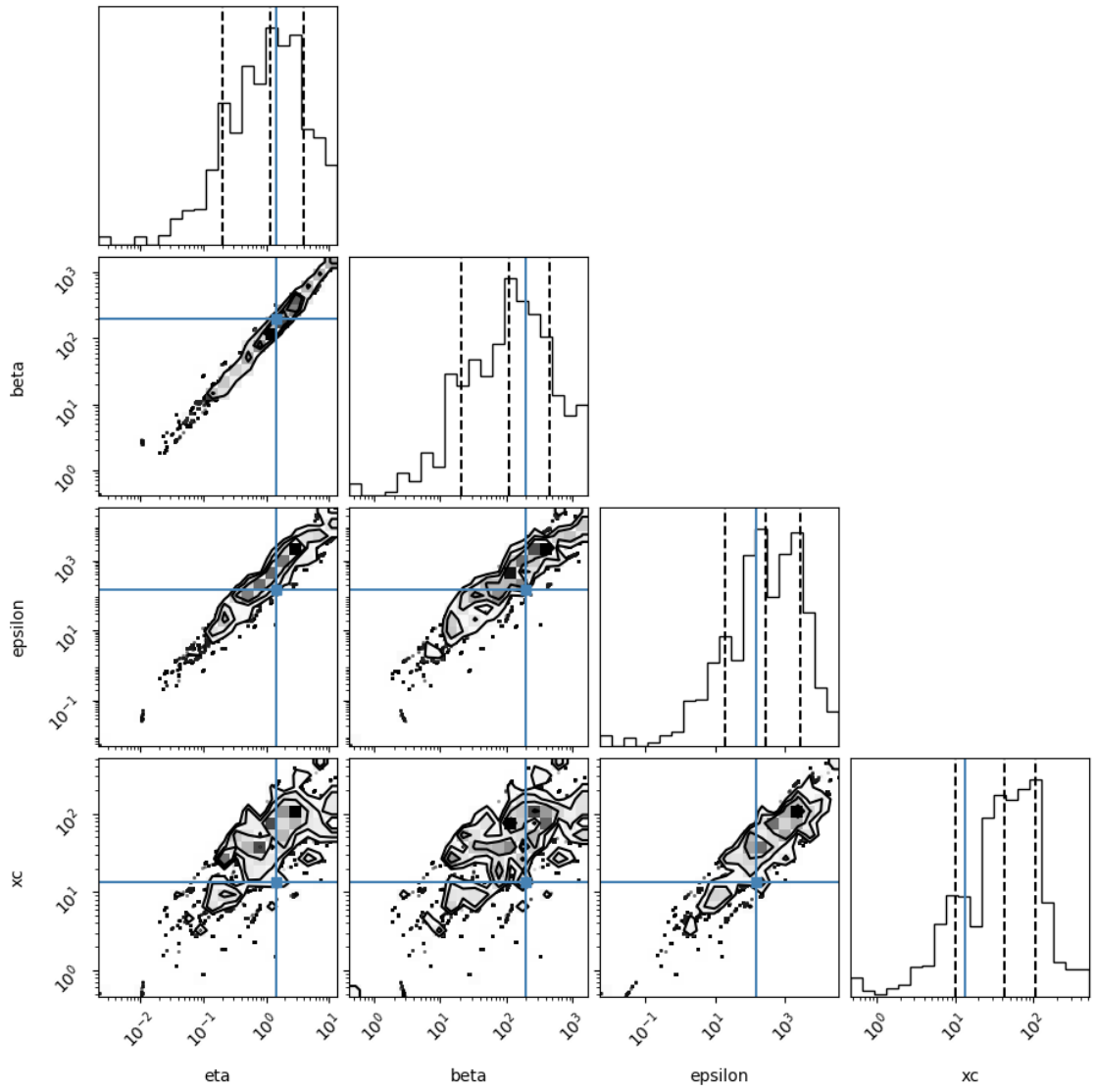
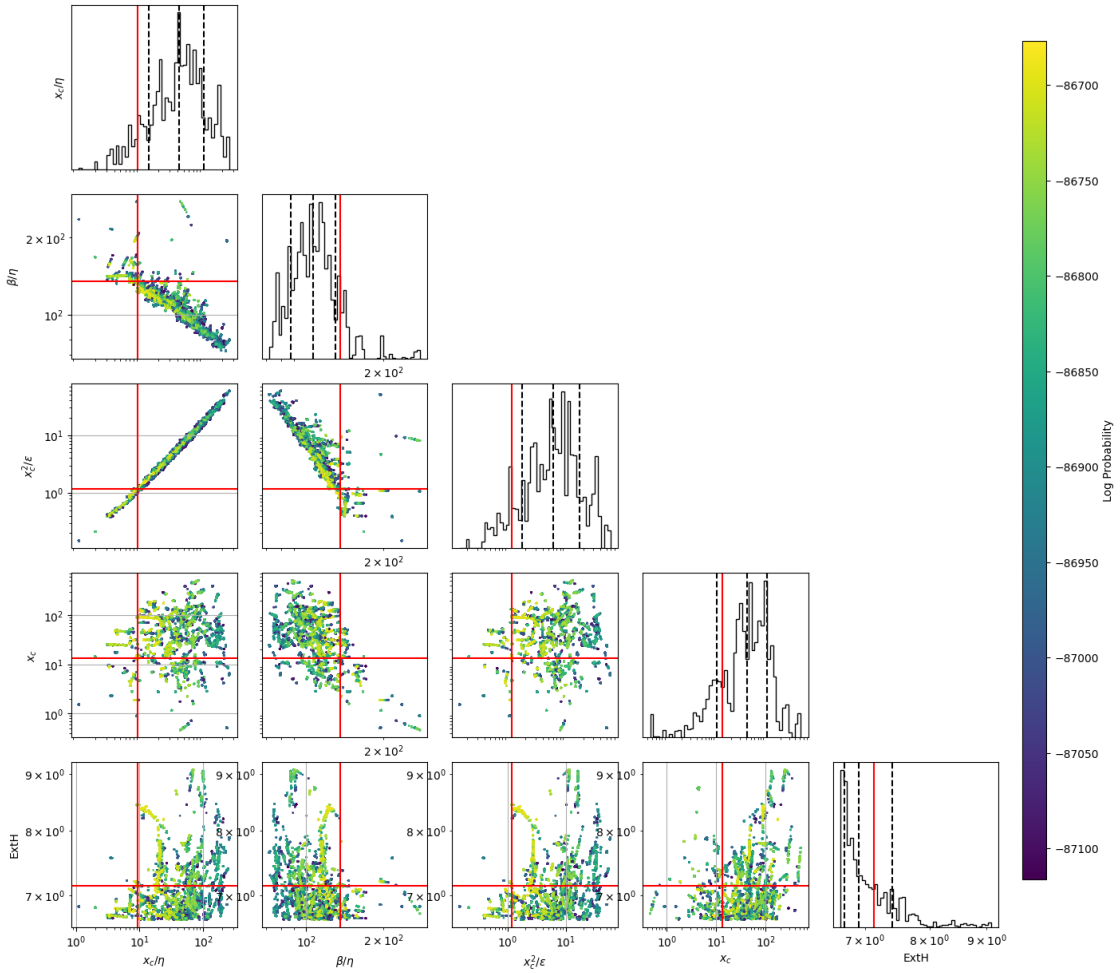

β/η
x_c^2/ε
x_c
EextH
x_c/η
β/η
x_c^2/ε
x_c
EextH



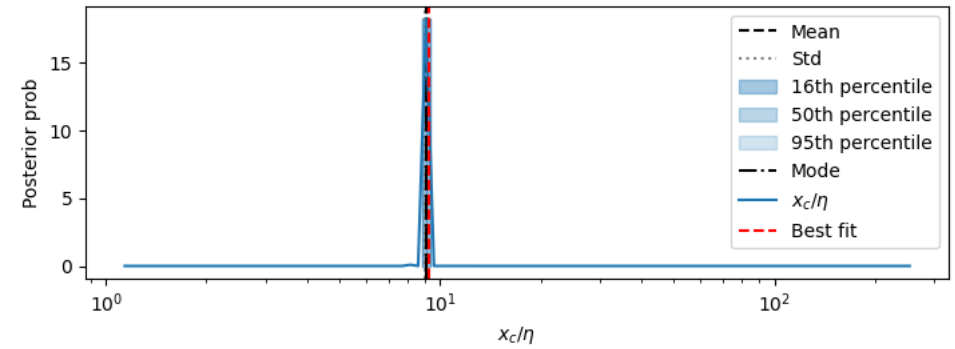
2 2. Heat map corner plot of raw samples

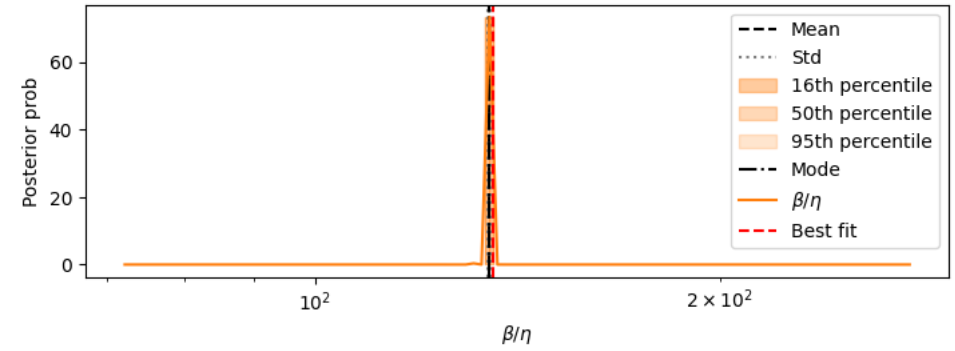
This plot shows all the raw sample points and their lnprobability

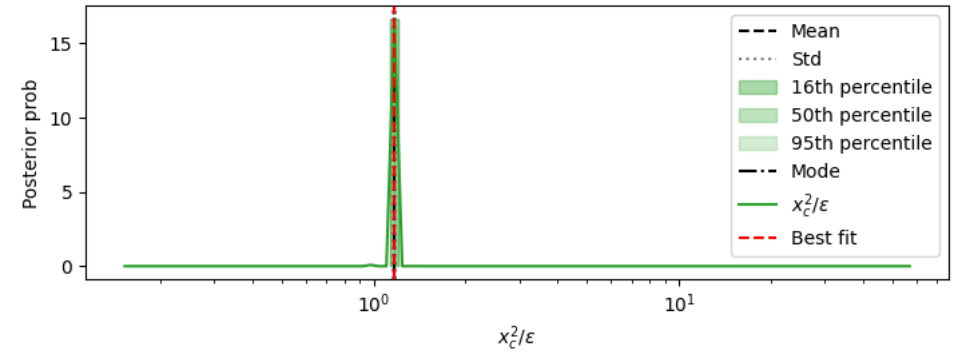


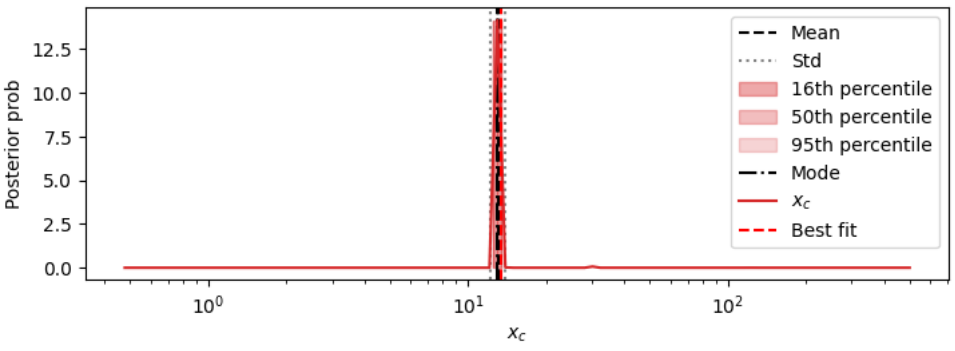
3 3. Posterior distributions of parameters

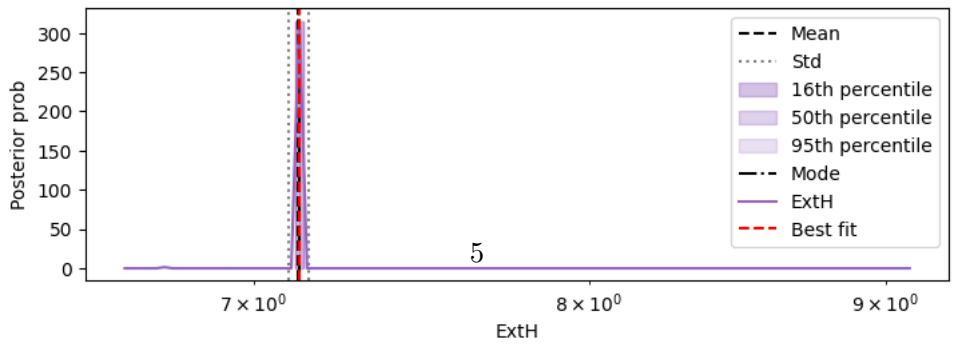
1d marginalizations of posterior distributions. we use a grid of size nbins=100-150


Posterior prob
x_c/η
Mean
Std
16th percentile
50th percentile
95th percentile
Mode
x_c/η
Best fit

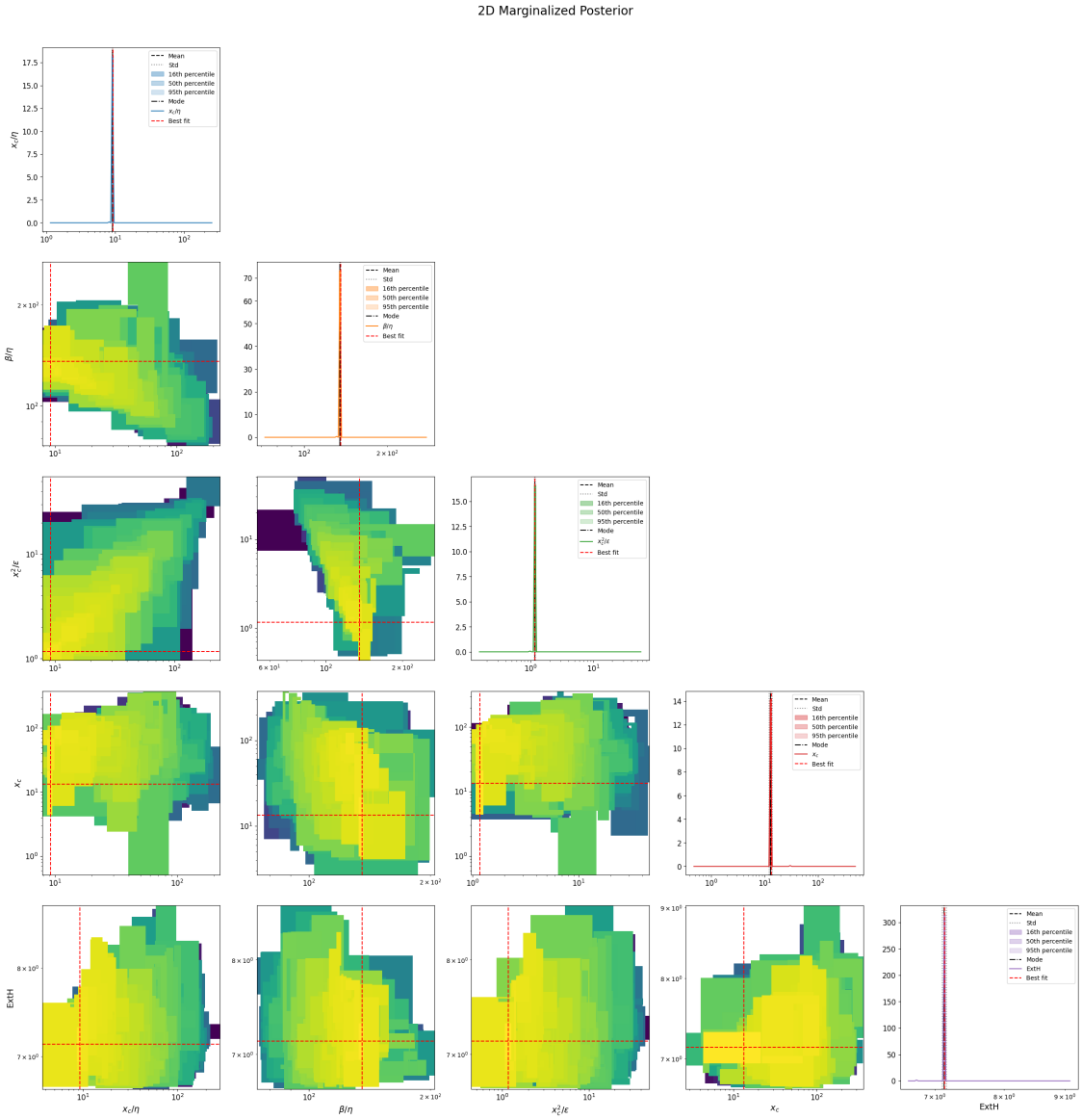

Posterior prob
β/η
Mean
Std
16th percentile
50th percentile
95th percentile
Mode
β/η
Best fit


Posterior prob
x_c^2/ε
Mean
Std
16th percentile
50th percentile
95th percentile
Mode
x_c^2/ε
Best fit


Posterior prob
x_c
Mean
Std
16th percentile
50th percentile
95th percentile
Mode
x_c
Best fit


Posterior prob
ExtH
Mean
Std
16th percentile
50th percentile
95th percentile
Mode
ExtH
Best fit

2D marginalizations of posterior distributions

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Rescaling the samples TIME by 365
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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	9.077	[0.0719, 0.0713]	10.13
beta/eta	134.792	[0.283, 0.282]	122.6
xc^2/epsilon	1.168	[0.0148, 0.0147]	1.399
xc	13.031	[0.84, 0.789]	30.148
ExtH	7.127	[0.0271, 0.027]	7.129
eta	1.48	[0.25, 0.214]	2.439
beta	194.873	[34.191, 29.087]	206.263
epsilon	157.583	[56.275, 41.467]	175.449
sqrt(xc/eta)	3.013	[0.00683, 0.00682]	3.183
s= eta^0.5*xc^1.5/epsilon	0.385	[0.00631, 0.00621]	0.405
beta*xc/epsilon	17.23	[0.038, 0.0379]	16.992
eta*xc/epsilon	0.127	[0.00107, 0.00106]	0.126
Fx=beta^2/eta*xc	2068.33	[15.521, 15.405]	1205.825
Dx =beta*epsilon/eta*xc^2	112.953	[0.756, 0.751]	85.13
Pk=beta*k/epsilon	0.643	[0.0329, 0.0313]	0.281
Fk=beta^2/eta*k	54352.652	[2644.576, 2521.872]	54185.143
Dk =beta*epsilon/eta*k^2	83744.962	[9516.463, 8545.396]	86715.224
Fk^2/Dk=beta^3/eta*epsilon	35389.256	[92.688, 92.446]	10937.148
epsilon/beta^2	0.004	[7.46e-05, 7.33e-05]	0.0103
k/beta	0.00259	[0.000346, 0.000305]	0.00242
k^2/epsilon	0.00162	[0.000431, 0.00034]	0.00142
best fit_MedianLifetime	74.79	0.51	74.79
best fit_MaxLifetime	108.79	0	108.79
data_MedianLifetime	70.0	0.51	70.0
data_MaxLifetime	104.0	0	104.0

	percentile_16
xc/eta	[9.857, 10.41]
beta/eta	[121.771, 123.434]
xc^2/epsilon	[1.357, 1.441]
xc	[29.107, 31.226]
ExtH	[7.118, 7.14]
eta	[2.335, 2.781]
beta	[197.846, 215.038]
epsilon	[162.189, 189.792]
sqrt(xc/eta)	[3.14, 3.226]
s= eta^0.5*xc^1.5/epsilon	[0.399, 0.412]
beta*xc/epsilon	[16.873, 17.111]
eta*xc/epsilon	[0.126, 0.127]
Fx=beta^2/eta*xc	[1160.232, 1253.209]
Dx =beta*epsilon/eta*xc^2	[82.175, 88.192]
Pk=beta*k/epsilon	[0.269, 0.292]
Fk=beta^2/eta*k	[52052.589, 56405.066]
Dk =beta*epsilon/eta*k^2	[80343.929, 93591.766]
Fk^2/Dk=beta^3/eta*epsilon	[10487.954, 11405.581]
epsilon/beta^2	[0.00993, 0.0107]

```
k/beta                                          [0.00232, 0.00253]
k^2/epsilon                                     [0.00132, 0.00154]
best fit_MedianLifetime     [74.30000000000001, 75.30000000000001]
best fit_MaxLifetime                              [108.79, 108.79]
data_MedianLifetime                                  [69.5, 70.51]
data_MaxLifetime                                    [104.0, 104.0]

                                                    percentile_50  \
xc/eta                                             [9.857, 10.994]
beta/eta                                          [121.771, 125.12]
xc^2/epsilon                                          [1.357, 1.441]
xc                                                [27.132, 31.226]
ExtH                                                  [7.118, 7.163]
eta                                                   [2.139, 4.701]
beta                                             [197.846, 215.038]
epsilon                                          [162.189, 189.792]
sqrt(xc/eta)                                           [3.14, 3.316]
s= eta^0.5*xc^1.5/epsilon                             [0.386, 0.412]
beta*xc/epsilon                                   [16.873, 17.353]
eta*xc/epsilon                                        [0.126, 0.128]
Fx=beta^2/eta*xc                                [1160.232, 1353.637]
Dx =beta*epsilon/eta*xc^2                            [82.175, 94.65]
Pk=beta*k/epsilon                                     [0.269, 0.292]
Fk=beta^2/eta*k                                [52052.589, 61121.483]
Dk =beta*epsilon/eta*k^2                       [80343.929, 93591.766]
Fk^2/Dk=beta^3/eta*epsilon                     [10487.954, 12403.493]
epsilon/beta^2                                      [0.00924, 0.0107]
k/beta                                            [0.00232, 0.00253]
k^2/epsilon                                       [0.00132, 0.00154]
best fit_MedianLifetime     [74.30000000000001, 75.30000000000001]
best fit_MaxLifetime                              [108.79, 108.79]
data_MedianLifetime                                  [69.5, 70.51]
data_MaxLifetime                                    [104.0, 104.0]

                                                    percentile_95  \
xc/eta                                             [9.333, 11.611]
beta/eta                                          [116.915, 126.828]
xc^2/epsilon                                           [1.279, 1.53]
xc                                                [11.676, 103.114]
ExtH                                                  [6.768, 7.346]
eta                                                   [1.96, 13.433]
beta                                             [182.029, 233.724]
epsilon                                          [101.215, 5148.695]
sqrt(xc/eta)                                          [3.055, 3.408]
s= eta^0.5*xc^1.5/epsilon                             [0.374, 0.426]
beta*xc/epsilon                                   [15.51, 17.353]
eta*xc/epsilon                                        [0.125, 0.129]
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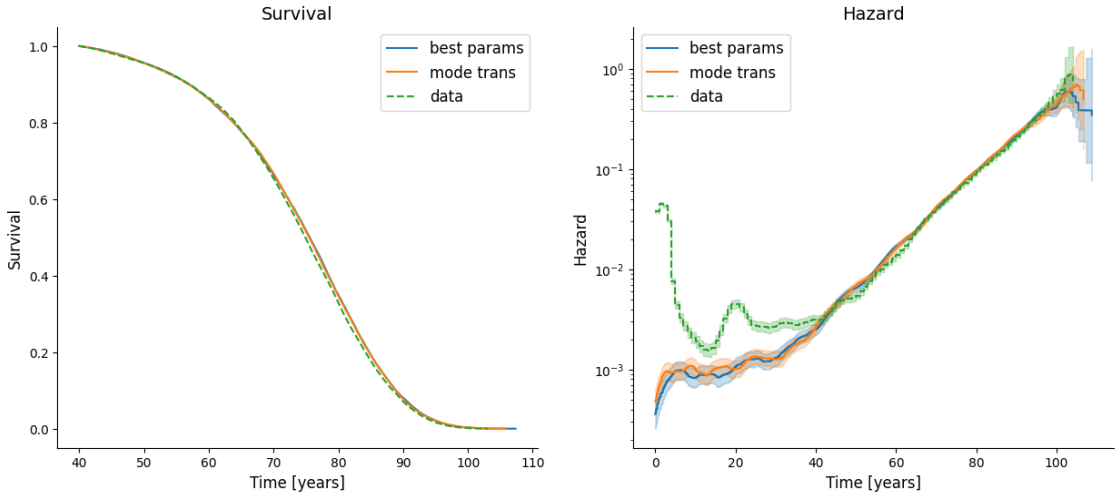
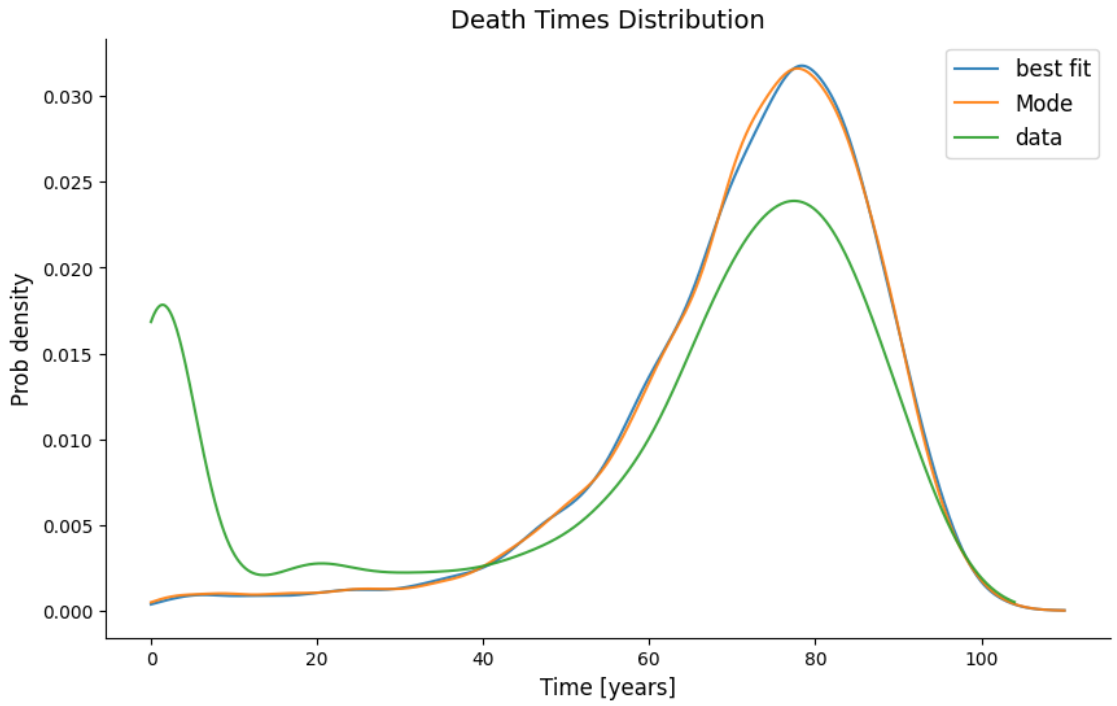
Fx=beta^2/eta*xc	[730.589, 1462.112]
Dx =beta*epsilon/eta*xc^2	[71.344, 117.001]
Pk=beta*k/epsilon	[0.0772, 0.408]
Fk=beta^2/eta*k	[37751.936, 259392.769]
Dk =beta*epsilon/eta*k^2	[80343.929, 109024.026]
Fk^2/Dk=beta^3/eta*epsilon	[8154.756, 18865.879]
epsilon/beta^2	[0.00598, 0.0143]
k/beta	[0.000519, 0.00298]
k^2/epsilon	[4.14e-05, 0.00211]
best fit_MedianLifetime	[74.30000000000001, 75.30000000000001]
best fit_MaxLifetime	[108.79, 108.79]
data_MedianLifetime	[69.5, 70.51]
data_MaxLifetime	[104.0, 104.0]

	max_likelihood	mode_overall
xc/eta	9.234	9.234
beta/eta	135.622	135.622
xc^2/epsilon	1.17	1.17
xc	13.399	13.399
ExtH	7.131	7.131
eta	1.451	1.451
beta	196.794	196.794
epsilon	153.402	153.402
sqrt(xc/eta)	3.039	3.039
s= eta^0.5*xc^1.5/epsilon	0.385	0.385
beta*xc/epsilon	17.189	17.189
eta*xc/epsilon	0.127	0.127
Fx=beta^2/eta*xc	1991.874	1991.874
Dx =beta*epsilon/eta*xc^2	115.879	115.879
Pk=beta*k/epsilon	0.641	0.641
Fk=beta^2/eta*k	53378.965	53378.965
Dk =beta*epsilon/eta*k^2	83218.566	83218.566
Fk^2/Dk=beta^3/eta*epsilon	34238.921	34238.921
epsilon/beta^2	0.00396	0.00396
k/beta	0.00254	0.00254
k^2/epsilon	0.00163	0.00163
best fit_MedianLifetime	74.79	NaN
best fit_MaxLifetime	108.79	NaN
data_MedianLifetime	70.0	NaN
data_MaxLifetime	104.0	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


Survival
best params
mode trans
data
Survival
Time [years]
Hazard
best params
mode trans
data
Hazard
Time [years]


Death Times Distribution
best fit
Mode
data
Prob density
Time [years]