Denmark_F_1900_post.csv_run_20_20250529_152222

May 29, 2025

```
/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_F_1900_post.csv
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Reading Humans_F
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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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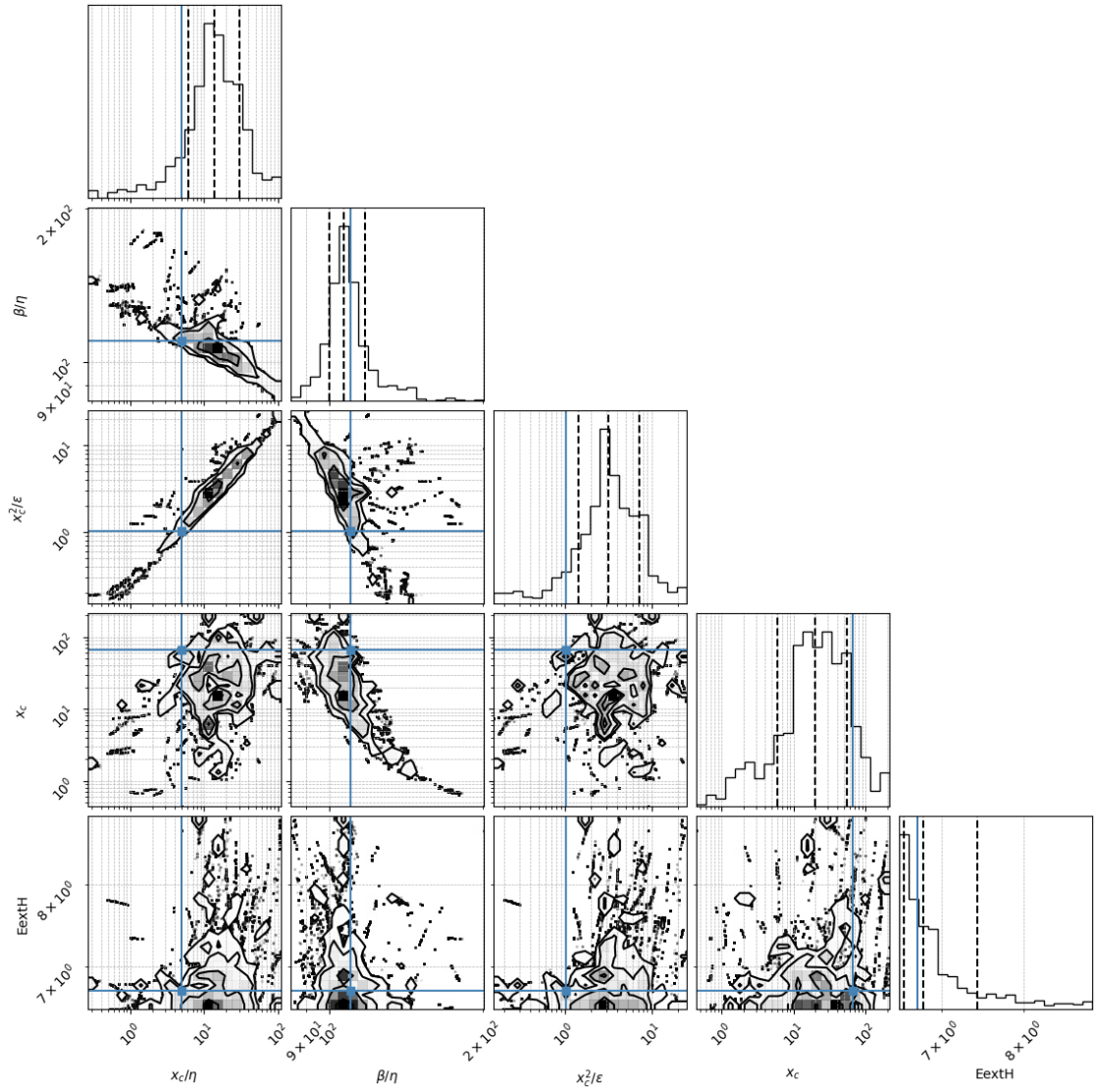
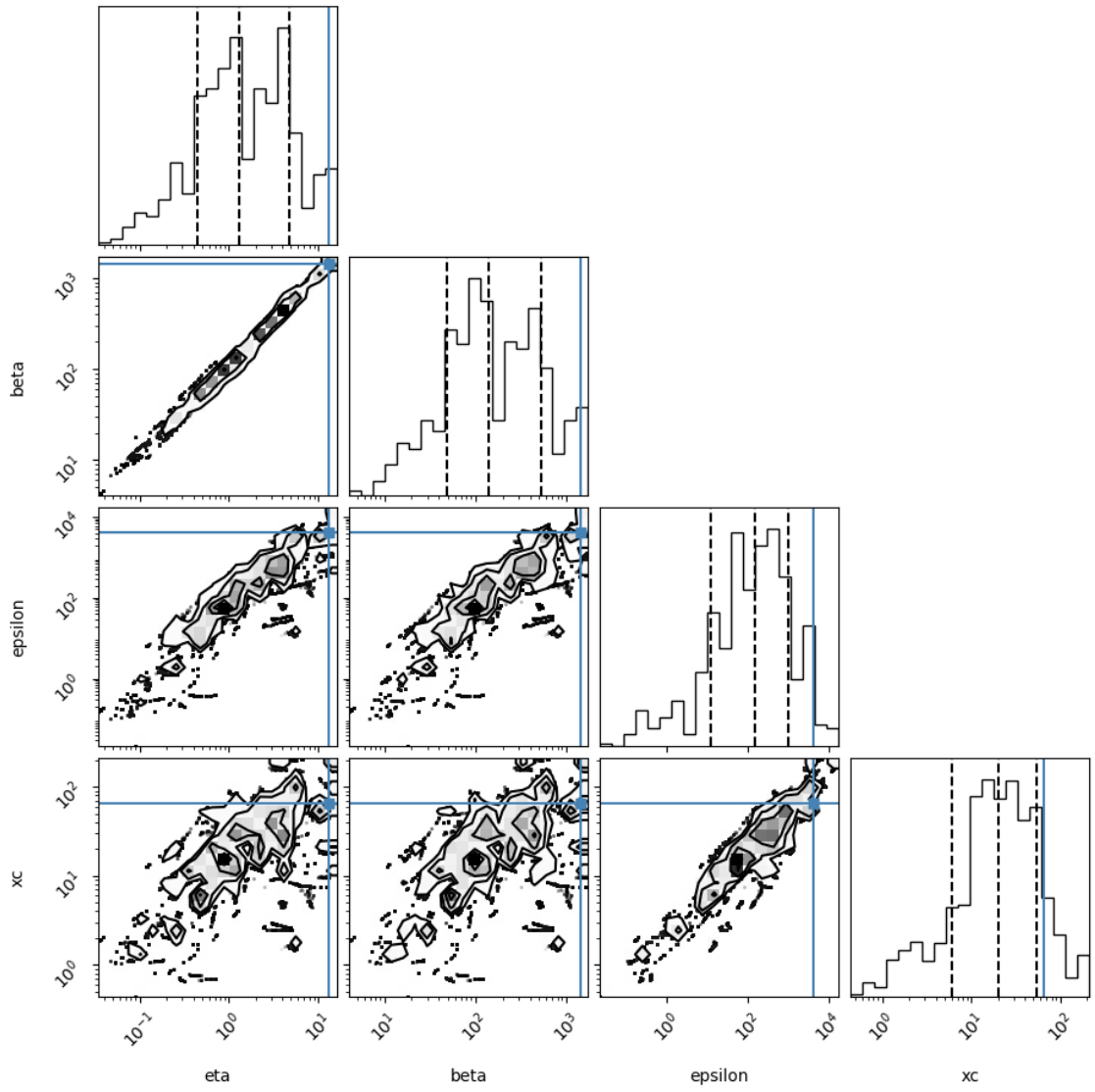
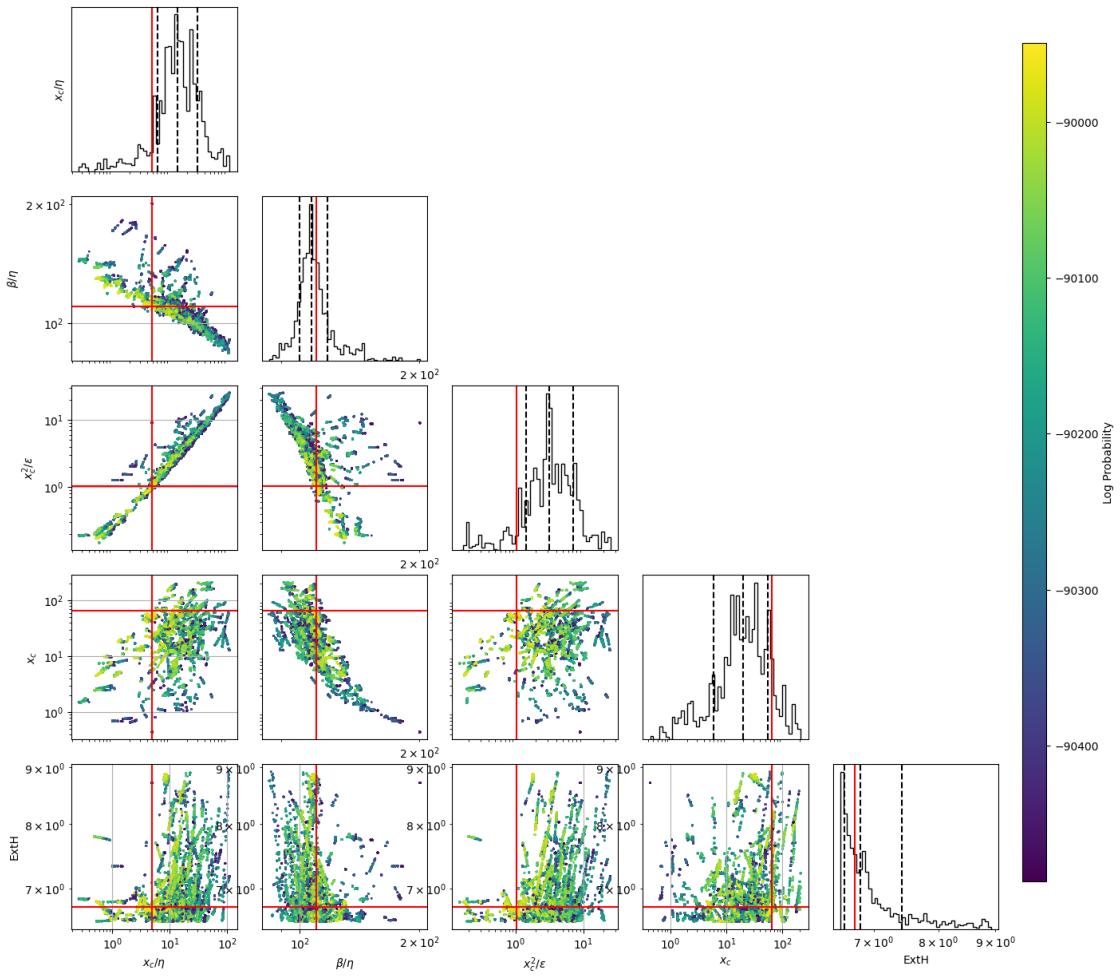

x_c/η
β/η
x_c^2/ε
x_c
EextH



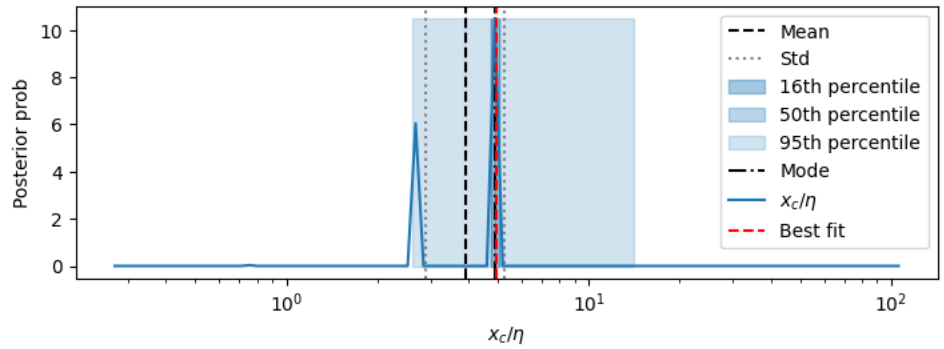
2 2. Heat map corner plot of raw samples

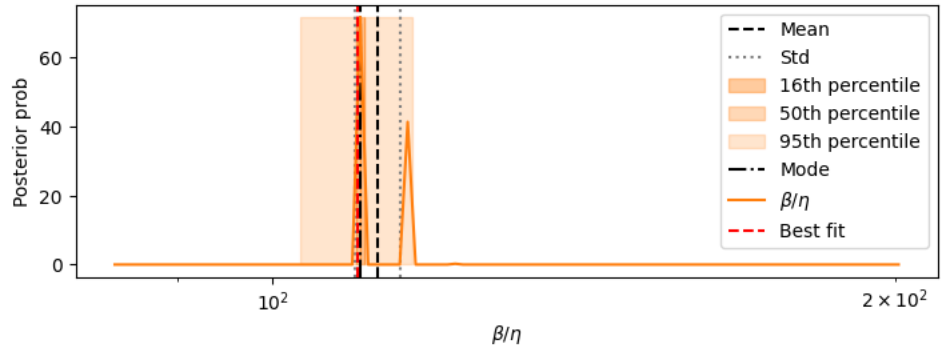
This plot shows all the raw sample points and their lnprobability

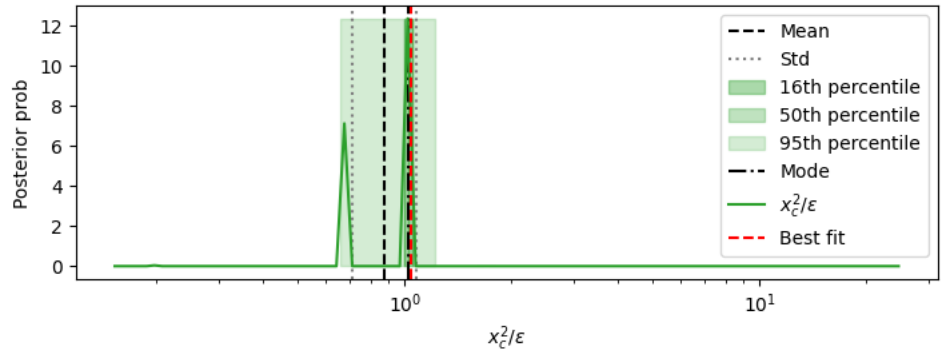


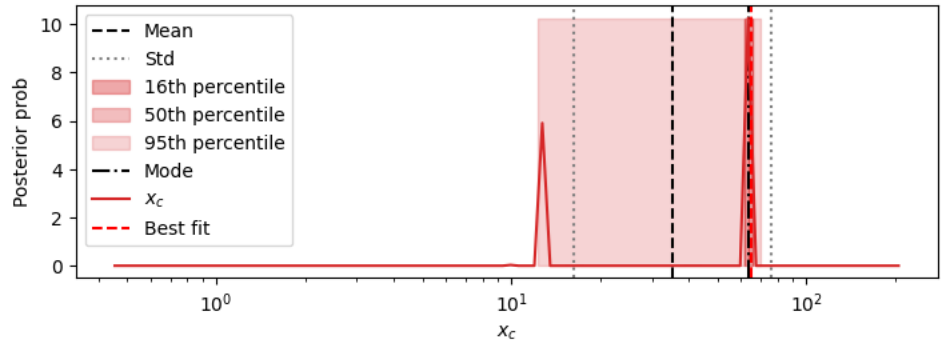
3 3. Posterior distributions of parameters

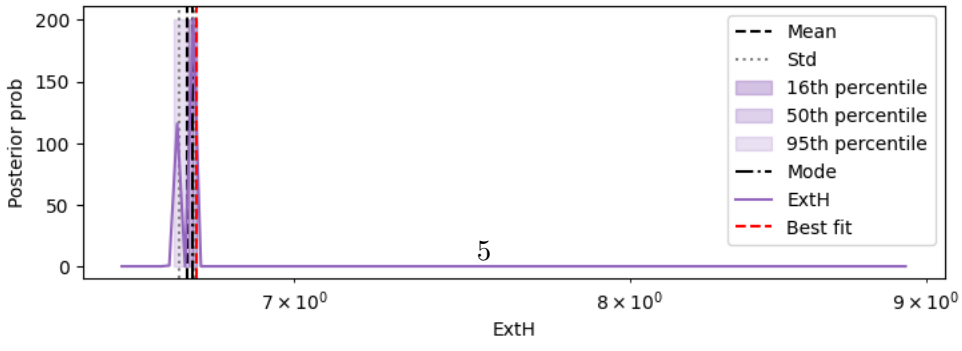
1d marginalizations of posterior distributions. we use a grid of size nbins=100-150


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

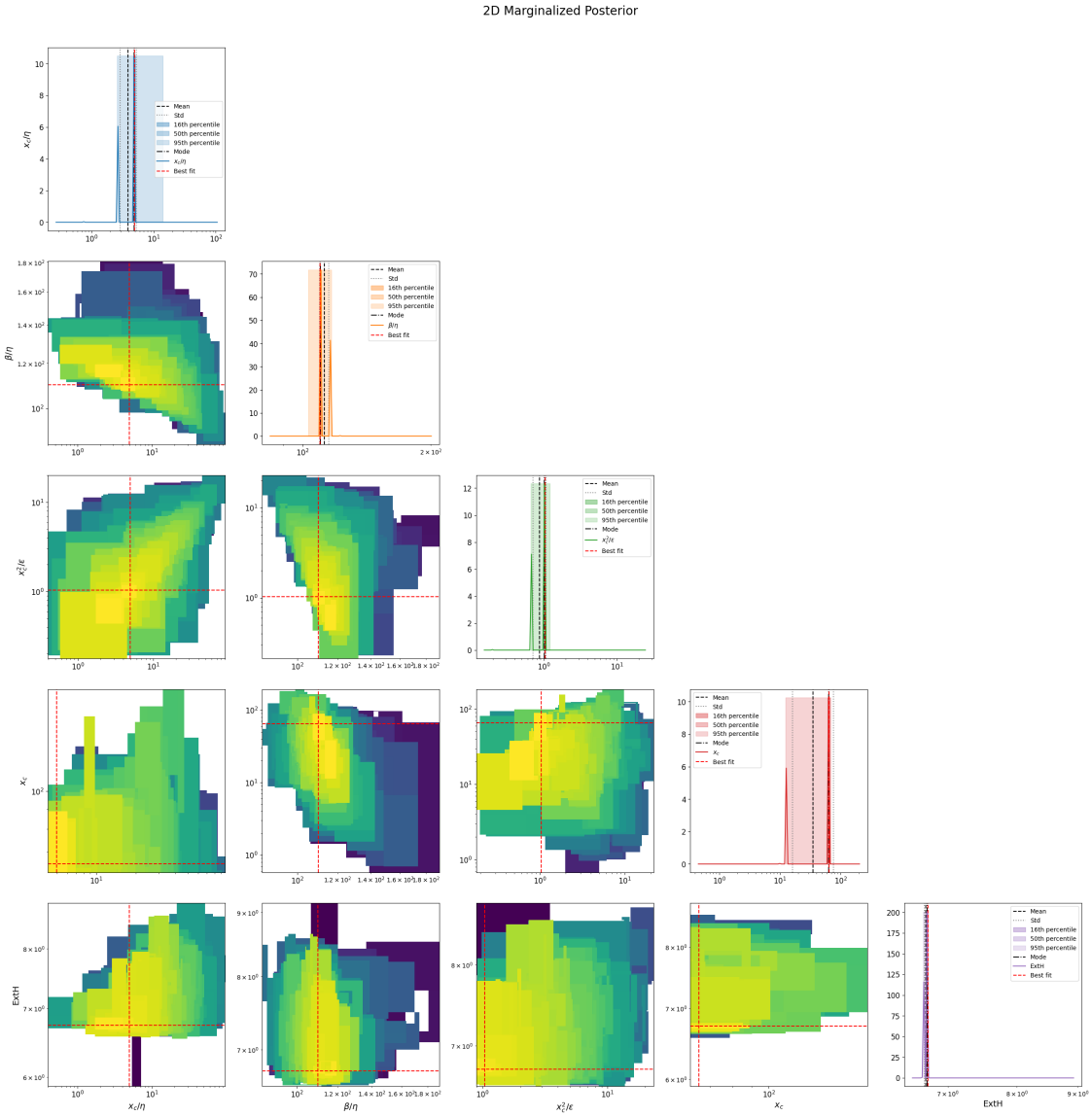

Posterior prob
β/η
Mean
Std
16th percentile
50th percentile
95th percentile
Mode
β/η
Best fit


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	\
xc/eta	3.912	[1.366, 1.012]	
beta/eta	112.458	[2.931, 2.857]	
xc^2/epsilon	0.875	[0.203, 0.165]	
xc	35.237	[41.234, 19.0]	
ExtH	6.708	[0.0205, 0.0205]	
eta	9.033	[5.945, 3.585]	
beta	1009.853	[553.89, 357.698]	
epsilon	1559.102	[4230.752, 1139.264]	
sqrt(xc/eta)	1.981	[0.31, 0.268]	
s= eta^0.5*xc^1.5/epsilon	0.436	[0.0332, 0.0308]	
beta*xc/epsilon	24.936	[2.329, 2.13]	
eta*xc/epsilon	0.241	[0.0108, 0.0103]	
Fx=beta^2/eta*xc	4524.109	[1215.659, 958.188]	
Dx =beta*epsilon/eta*xc^2	163.884	[31.756, 26.602]	
Pk=beta*k/epsilon	0.344	[0.453, 0.195]	
Fk=beta^2/eta*k	233553.706	[129123.021, 83151.627]	
Dk =beta*epsilon/eta*k^2	665703.453	[1664757.378, 475543.172]	
Fk^2/Dk=beta^3/eta*epsilon	79792.509	[43281.845, 28060.818]	
epsilon/beta^2	0.00145	[0.000797, 0.000515]	
k/beta	0.000495	[0.000271, 0.000175]	
k^2/epsilon	0.00016	[0.000435, 0.000117]	
best fit_MedianLifetime	78.84	0.51	
best fit_MaxLifetime	108.09	0	
data_MedianLifetime	75.0	0.51	
data_MaxLifetime	106.0	0	

	mode	\
xc/eta	4.606	
beta/eta	110.286	
xc^2/epsilon	0.83	
xc	52.796	
ExtH	6.681	
eta	12.465	
beta	1324.654	
epsilon	2804.541	
sqrt(xc/eta)	2.146	
s= eta^0.5*xc^1.5/epsilon	0.461	
beta*xc/epsilon	24.034	
eta*xc/epsilon	0.222	
Fx=beta^2/eta*xc	2941.086	
Dx =beta*epsilon/eta*xc^2	145.071	
Pk=beta*k/epsilon	0.218	
Fk=beta^2/eta*k	415645.061	
Dk =beta*epsilon/eta*k^2	1168907.145	
Fk^2/Dk=beta^3/eta*epsilon	57634.261	
epsilon/beta^2	0.00202	

k/beta	0.000355
k^2/epsilon	0.000089
best fit_MedianLifetime	78.84
best fit_MaxLifetime	108.09
data_MedianLifetime	75.0
data_MaxLifetime	106.0

	percentile_16 \
xc/eta	[4.469, 4.747]
beta/eta	[109.801, 110.773]
xc^2/epsilon	[0.809, 0.852]
xc	[51.19, 54.452]
ExtH	[6.67, 6.692]
eta	[12.086, 12.856]
beta	[1285.164, 1365.358]
epsilon	[2619.885, 3002.213]
sqrt(xc/eta)	[2.114, 2.179]
s= eta^0.5*xc^1.5/epsilon	[0.454, 0.468]
beta*xc/epsilon	[23.665, 24.408]
eta*xc/epsilon	[0.219, 0.224]
Fx=beta^2/eta*xc	[2838.863, 3046.989]
Dx =beta*epsilon/eta*xc^2	[141.112, 149.142]
Pk=beta*k/epsilon	[0.208, 0.228]
Fk=beta^2/eta*k	[403179.947, 428495.558]
Dk =beta*epsilon/eta*k^2	[1095268.258, 1247497.043]
Fk^2/Dk=beta^3/eta*epsilon	[55158.599, 60221.037]
epsilon/beta^2	[0.00194, 0.00211]
k/beta	[0.000344, 0.000366]
k^2/epsilon	[8.32e-05, 9.53e-05]
best fit_MedianLifetime	[78.35000000000001, 79.35000000000001]
best fit_MaxLifetime	[108.09, 108.09]
data_MedianLifetime	[74.51, 75.51]
data_MaxLifetime	[106.0, 106.0]

	percentile_50 \
xc/eta	[4.469, 5.042]
beta/eta	[109.801, 110.773]
xc^2/epsilon	[0.769, 0.897]
xc	[51.19, 57.922]
ExtH	[6.67, 6.713]
eta	[11.362, 12.856]
beta	[1285.164, 1450.556]
epsilon	[2286.245, 3002.213]
sqrt(xc/eta)	[2.114, 2.245]
s= eta^0.5*xc^1.5/epsilon	[0.44, 0.468]
beta*xc/epsilon	[23.665, 24.408]
eta*xc/epsilon	[0.214, 0.23]

Fx=beta^2/eta*xc	[2644.954, 3270.372]
Dx =beta*epsilon/eta*xc^2	[133.514, 149.142]
Pk=beta*k/epsilon	[0.208, 0.25]
Fk=beta^2/eta*k	[356947.316, 428495.558]
Dk =beta*epsilon/eta*k^2	[1095268.258, 1247497.043]
Fk^2/Dk=beta^3/eta*epsilon	[55158.599, 60221.037]
epsilon/beta^2	[0.00179, 0.00211]
k/beta	[0.000344, 0.000389]
k^2/epsilon	[8.32e-05, 0.000109]
best fit_MedianLifetime	[78.35000000000001, 79.35000000000001]
best fit_MaxLifetime	[108.09, 108.09]
data_MedianLifetime	[74.51, 75.51]
data_MaxLifetime	[106.0, 106.0]

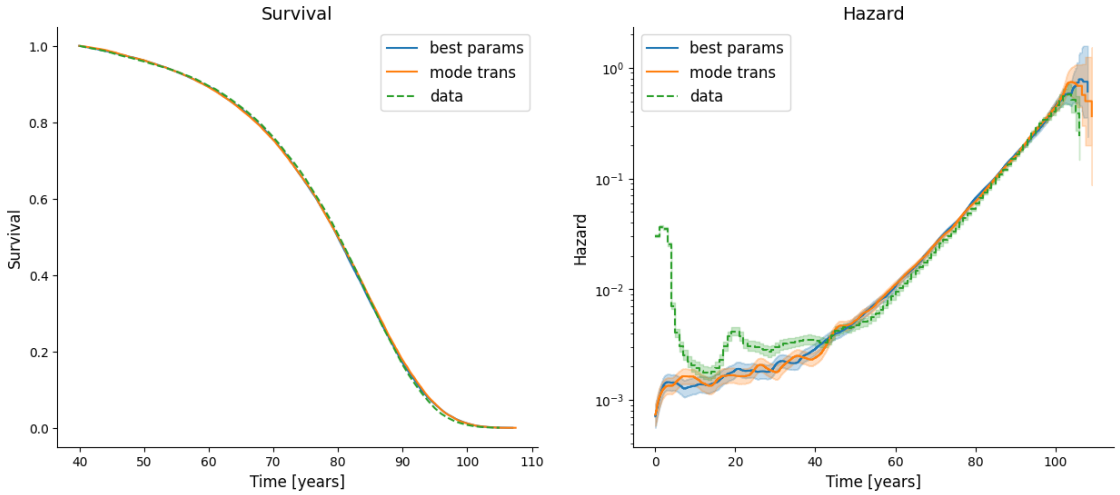
	percentile_95 \
xc/eta	[3.962, 5.356]
beta/eta	[108.838, 111.753]
xc^2/epsilon	[0.769, 1.101]
xc	[42.53, 57.922]
ExtH	[6.649, 6.734]
eta	[10.681, 13.675]
beta	[1209.679, 1739.398]
epsilon	[258.567, 3942.397]
sqrt(xc/eta)	[1.99, 2.314]
s= eta^0.5*xc^1.5/epsilon	[0.427, 0.482]
beta*xc/epsilon	[22.945, 25.174]
eta*xc/epsilon	[0.214, 0.241]
Fx=beta^2/eta*xc	[2139.139, 3510.133]
Dx =beta*epsilon/eta*xc^2	[95.787, 157.629]
Pk=beta*k/epsilon	[0.19, 0.274]
Fk=beta^2/eta*k	[279778.616, 428495.558]
Dk =beta*epsilon/eta*k^2	[119866.302, 1618369.076]
Fk^2/Dk=beta^3/eta*epsilon	[50521.732, 65748.103]
epsilon/beta^2	[0.00165, 0.00229]
k/beta	[0.000287, 0.000413]
k^2/epsilon	[7.26e-05, 0.000843]
best fit_MedianLifetime	[78.35000000000001, 79.35000000000001]
best fit_MaxLifetime	[108.09, 108.09]
data_MedianLifetime	[74.51, 75.51]
data_MaxLifetime	[106.0, 106.0]

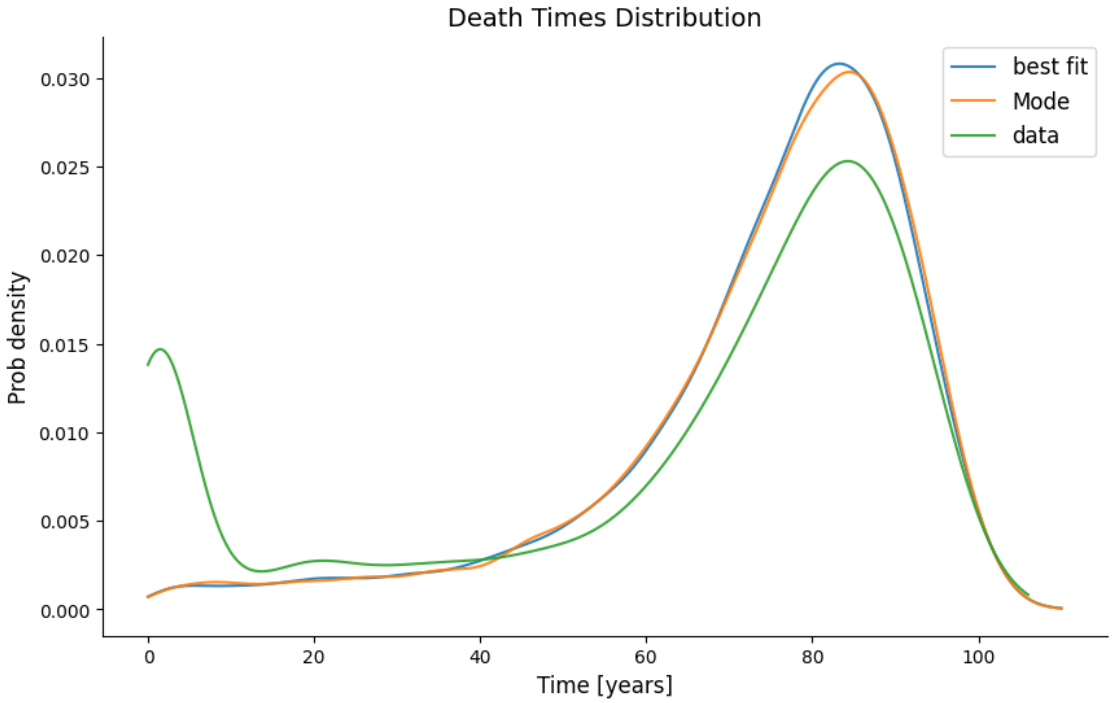
	max_likelihood	mode_overall
xc/eta	4.954	4.954
beta/eta	109.938	109.938
xc^2/epsilon	1.037	1.037
xc	65.181	65.181
ExtH	6.733	6.733

eta	13.157	13.157
beta	1446.407	1446.407
epsilon	4096.74	4096.74
sqrt(xc/eta)	2.226	2.226
s= eta^0.5*xc^1.5/epsilon	0.466	0.466
beta*xc/epsilon	23.013	23.013
eta*xc/epsilon	0.209	0.242
Fx=beta^2/eta*xc	2439.613	4924.89
Dx =beta*epsilon/eta*xc^2	106.011	174.766
Pk=beta*k/epsilon	0.177	0.177
Fk=beta^2/eta*k	318031.183	318031.183
Dk =beta*epsilon/eta*k^2	1801554.676	1801554.676
Fk^2/Dk=beta^3/eta*epsilon	56142.528	56142.528
epsilon/beta^2	0.00196	0.00196
k/beta	0.000346	0.000346
k^2/epsilon	0.000061	0.000061
best fit_MedianLifetime	78.84	NaN
best fit_MaxLifetime	108.09	NaN
data_MedianLifetime	75.0	NaN
data_MaxLifetime	106.0	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




Death Times Distribution
best fit
Mode
data
Prob density
0.030
0.025
0.020
0.015
0.010
0.005
0.000
0
20
40
60
80
100
Time [years]