humans_M_combined_post.csv_run_11_20250529_144437

May 29, 2025

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/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/humans_M_combined_post.csv

 Binning samples:   0%|
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| 74941/399939 [00:00<00:00, 749387.49it/s]

 Processing samples:
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| 155620/399939 [00:00<00:00, 783148.20it/s]

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| 237685/399939 [00:00<00:00, 800261.16it/s]

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 Averaging log-probabilities:   0%|
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 Processing unique samples for set 0:   0%|
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142.01it/s]


 Processing samples:   0%|
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| 76133/399650 [00:00<00:00, 761307.13it/s]
 Processing samples:
39%|
| 155311/399650 [00:00<00:00, 779219.45it/s]
 Processing samples:  59%|

| 234328/399650 [00:00<00:00, 784208.87it/s]
 Processing samples:  79%|

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797526.74it/s]
 Processing samples: 100%|

                     | 399232/399650 [00:00<00:00,
809620.80it/s]
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797634.48it/s]
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 Averaging log-probabilities:   0%|
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 Averaging log-probabilities: 100%|
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430567.67it/s]


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558140.95it/s]


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43.11it/s]
 Binning samples: 100%|
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42.95it/s]


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| 154733/1198282 [00:00<00:01, 777257.60it/s]
 Processing samples:  20%|
| 235984/1198282 [00:00<00:01, 793350.50it/s]
 Processing samples:  27%|
| 317655/1198282 [00:00<00:01, 802569.03it/s]
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| 398723/1198282 [00:00<00:00, 805485.15it/s]
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 Processing samples:
40%|
| 479272/1198282 [00:00<00:00, 795295.97it/s]
 Processing samples:  47%|
| 560927/1198282 [00:00<00:00, 802177.13it/s]
 Processing samples:  54%|
| 643214/1198282 [00:00<00:00, 808720.93it/s]
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| 724951/1198282 [00:00<00:00, 811406.85it/s]
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| 807792/1198282 [00:01<00:00, 816633.82it/s]
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| 890838/1198282 [00:01<00:00, 820851.95it/s]
 Processing samples:  81%|
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825922.00it/s]
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828940.92it/s]
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519714.54it/s]


Reading Humans_M
```

1 # 1. Density coner plot

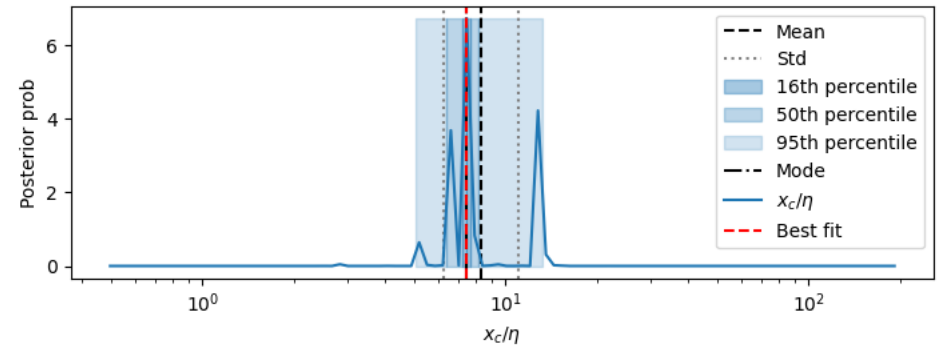
A sample is 1 parameter set scanned. For the corner plot below, the quantiles (represented by the solid lines) are 0.16,0.5,0.84 of the samples. Dots represent individual samples (outside the line surrounding 0.84 of the samples) The parameter search is performed in the transformed space of x_c/η, β/η,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

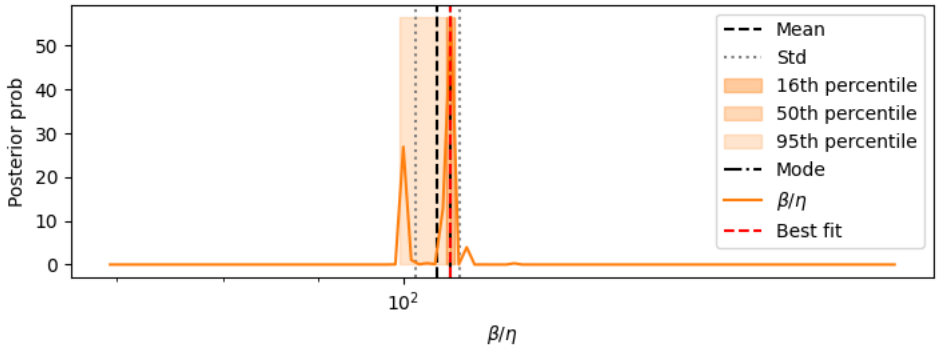
2 2. Heat map corner plot of raw samples

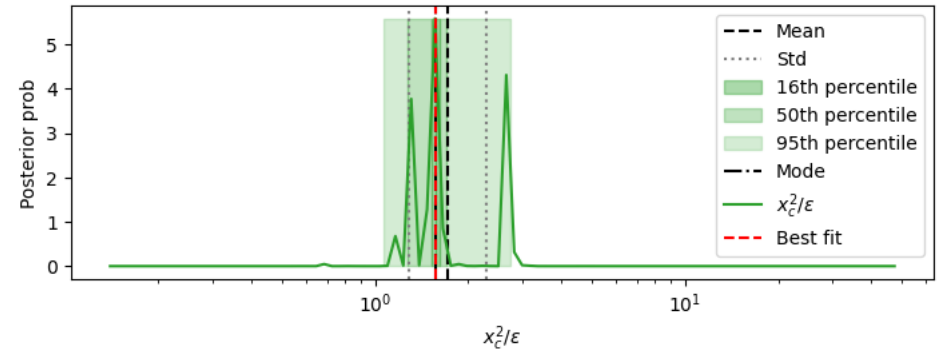
This plot shows all the raw sample points and their lnprobability

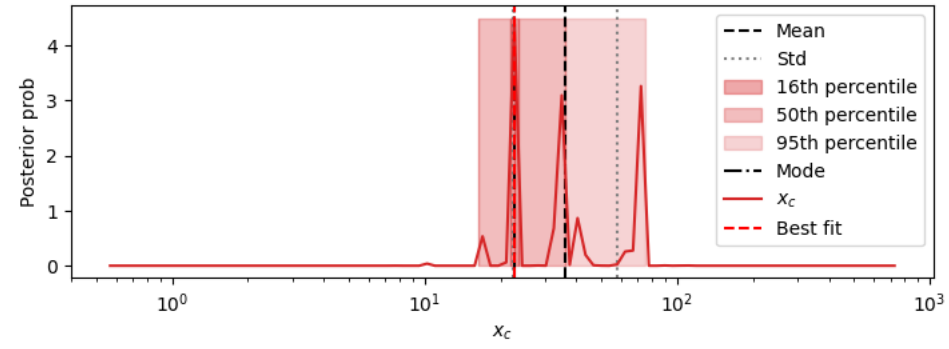
3 3. Posterior distributions of parameters

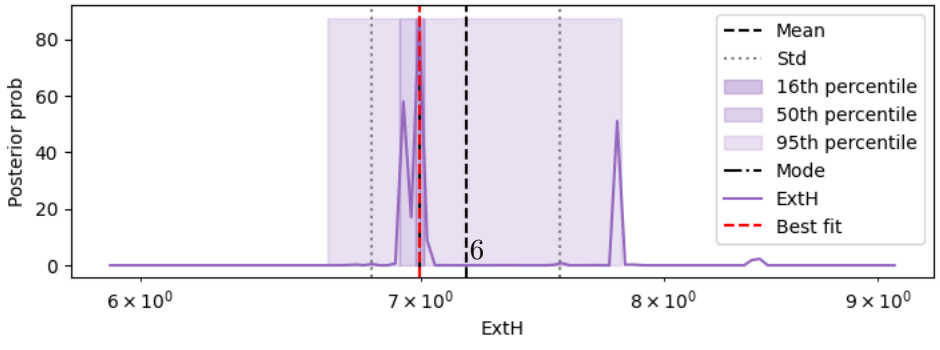
1d marginalizations of posterior distributions. we use a grid of size nbins=100-150


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


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


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


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


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

2D marginalizations of posterior distributions

```
 Creating corner plot:   0%|
| 0/5 [00:00<?, ?it/s]

 Creating corner plot:
40%|
| 2/5 [00:00<00:00,  5.10it/s]

 Creating corner plot:  60%|

| 3/5 [00:01<00:00,  2.28it/s]

 Creating corner plot:  80%|

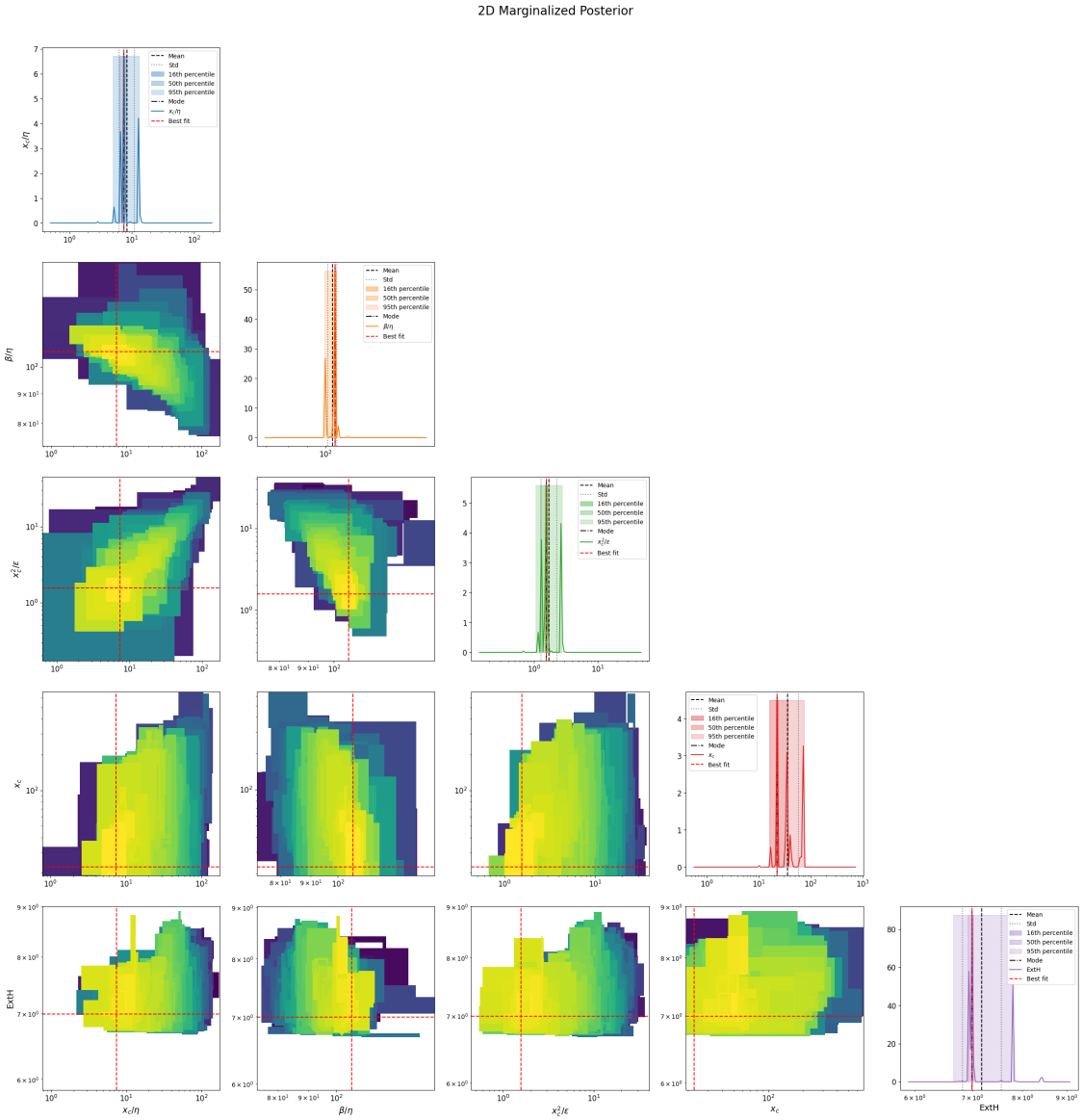
                                                | 4/5 [00:03<00:01,
1.18s/it]

 Creating corner plot: 100%|

                                | 5/5 [00:08<00:00,
2.42s/it]

 Creating corner plot: 100%|

                                | 5/5 [00:08<00:00,
1.67s/it]
```




```
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	8.315	[2.751, 2.067]	7.45	
beta/eta	104.338	[2.843, 2.767]	105.032	
xc^2/epsilon	1.712	[0.572, 0.429]	1.562	
xc	36.064	[22.03, 13.676]	37.622	

ExtH	7.176	[0.381, 0.362]	6.964
eta	3.811	[1.156, 0.887]	4.965
beta	408.641	[112.523, 88.229]	384.549
epsilon	524.819	[426.539, 235.301]	1064.08
sqrt(xc/eta)	2.725	[0.287, 0.26]	2.729
s= eta^0.5*xc^1.5/epsilon	0.569	[0.0538, 0.0491]	0.571
beta*xc/epsilon	22.06	[0.867, 0.834]	21.652
eta*xc/epsilon	0.21	[0.00549, 0.00535]	0.206
Fx=beta^2/eta*xc	1457.727	[430.243, 332.196]	1429.882
Dx =beta*epsilon/eta*xc^2	66.753	[16.688, 13.351]	64.862
Pk=beta*k/epsilon	0.405	[0.196, 0.132]	0.302
Fk=beta^2/eta*k	80440.816	[21453.7, 16936.663]	79368.538
Dk =beta*epsilon/eta*k^2	298516.988	[353351.652, 161813.998]	523849.586
Fk^2/Dk=beta^3/eta*epsilon	25250.566	[12972.108, 8569.601]	32685.107
epsilon/beta^2	0.00312	[0.0009, 0.000698]	0.00304
k/beta	0.00115	[0.000339, 0.000261]	0.0013
k^2/epsilon	0.000423	[0.000351, 0.000192]	0.000235
best fit_MedianLifetime	74.18	0.51	74.18
best fit_MaxLifetime	105.2	0	105.2
data_MedianLifetime	73.0	0.5	73.0
data_MaxLifetime	106.0	0	106.0

	percentile_16 \
xc/eta	[7.229, 7.677]
beta/eta	[104.517, 105.55]
xc^2/epsilon	[1.516, 1.608]
xc	[36.287, 39.006]
ExtH	[6.949, 6.979]
eta	[4.794, 5.141]
beta	[371.863, 397.668]
epsilon	[858.741, 1142.909]
sqrt(xc/eta)	[2.689, 2.771]
s= eta^0.5*xc^1.5/epsilon	[0.563, 0.58]
beta*xc/epsilon	[21.363, 21.944]
eta*xc/epsilon	[0.204, 0.208]
Fx=beta^2/eta*xc	[1377.455, 1484.304]
Dx =beta*epsilon/eta*xc^2	[62.779, 67.013]
Pk=beta*k/epsilon	[0.261, 0.318]
Fk=beta^2/eta*k	[76781.151, 82043.115]
Dk =beta*epsilon/eta*k^2	[488904.401, 561292.532]
Fk^2/Dk=beta^3/eta*epsilon	[31152.913, 34292.659]
epsilon/beta^2	[0.00291, 0.00317]
k/beta	[0.00126, 0.00144]
k^2/epsilon	[0.000189, 0.000252]
best fit_MedianLifetime	[73.69000000000001, 74.69000000000001]
best fit_MaxLifetime	[105.2, 105.2]
data_MedianLifetime	[72.51, 73.5]

```
data_MaxLifetime                                    [106.0, 106.0]

                                                     percentile_50  \
xc/eta                                              [6.806, 8.154]
beta/eta                                          [103.494, 106.592]
xc^2/epsilon                                        [1.516, 1.706]
xc                                                [33.758, 41.928]
ExtH                                                 [6.949, 7.01]
eta                                                  [4.17, 5.513]
beta                                              [347.733, 454.774]
epsilon                                           [559.291, 1318.519]
sqrt(xc/eta)                                        [2.609, 2.855]
s= eta^0.5*xc^1.5/epsilon                           [0.546, 0.597]
beta*xc/epsilon                                   [20.798, 21.944]
eta*xc/epsilon                                      [0.204, 0.213]
Fx=beta^2/eta*xc                                [1278.298, 1599.441]
Dx =beta*epsilon/eta*xc^2                           [58.813, 71.532]
Pk=beta*k/epsilon                                   [0.236, 0.387]
Fk=beta^2/eta*k                                 [67248.031, 87665.692]
Dk =beta*epsilon/eta*k^2                       [425851.939, 644398.59]
Fk^2/Dk=beta^3/eta*epsilon                      [28300.633, 37748.846]
epsilon/beta^2                                      [0.00291, 0.00346]
k/beta                                              [0.00103, 0.00144]
k^2/epsilon                                     [0.000189, 0.000515]
best fit_MedianLifetime     [73.69000000000001, 74.69000000000001]
best fit_MaxLifetime                                [105.2, 105.2]
data_MedianLifetime                                  [72.51, 73.5]
data_MaxLifetime                                    [106.0, 106.0]

                                                     percentile_95  \
xc/eta                                              [6.034, 14.018]
beta/eta                                          [99.503, 106.592]
xc^2/epsilon                                         [1.43, 2.897]
xc                                                [20.358, 60.173]
ExtH                                                 [6.889, 7.04]
eta                                                 [3.154, 5.912]
beta                                              [325.168, 636.037]
epsilon                                           [237.241, 1521.112]
sqrt(xc/eta)                                        [2.456, 3.525]
s= eta^0.5*xc^1.5/epsilon                           [0.515, 0.653]
beta*xc/epsilon                                   [20.248, 23.153]
eta*xc/epsilon                                        [0.2, 0.217]
Fx=beta^2/eta*xc                                  [757.731, 1857.2]
Dx =beta*epsilon/eta*xc^2                         [37.246, 76.356]
Pk=beta*k/epsilon                                    [0.159, 0.52]
Fk=beta^2/eta*k                                 [62934.973, 122114.515]
Dk =beta*epsilon/eta*k^2                       [122905.345, 849347.117]
```

Fk^2/Dk=beta^3/eta*epsilon	[14450.357, 45741.32]
epsilon/beta^2	[0.00225, 0.00448]
k/beta	[0.00084, 0.00154]
k^2/epsilon	[0.000164, 0.00105]
best fit_MedianLifetime	[73.69000000000001, 74.69000000000001]
best fit_MaxLifetime	[105.2, 105.2]
data_MedianLifetime	[72.51, 73.5]
data_MaxLifetime	[106.0, 106.0]

	max_likelihood	mode_overall
xc/eta	6.607	7.45
beta/eta	106.418	106.07
xc^2/epsilon	1.343	1.562
xc	35.589	22.688
ExtH	7.802	6.994
eta	5.387	3.045
beta	573.253	336.261
epsilon	942.903	339.138
sqrt(xc/eta)	2.57	2.729
s= eta^0.5*xc^1.5/epsilon	0.523	0.571
beta*xc/epsilon	21.637	22.24
eta*xc/epsilon	0.203	0.21
Fx=beta^2/eta*xc	1714.166	1540.797
Dx =beta*epsilon/eta*xc^2	79.225	69.236
Pk=beta*k/epsilon	0.304	0.495
Fk=beta^2/eta*k	122009.265	69514.169
Dk =beta*epsilon/eta*k^2	401368.673	151188.496
Fk^2/Dk=beta^3/eta*epsilon	37088.746	32685.107
epsilon/beta^2	0.00287	0.00304
k/beta	0.000872	0.00149
k^2/epsilon	0.000265	0.000736
best fit_MedianLifetime	74.18	NaN
best fit_MaxLifetime	105.2	NaN
data_MedianLifetime	73.0	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