

Years of life lost to COVID-19 in Federation of Bosnia and Herzegovina during 2020-2021

Šeila Cilović Lagarija, Siniša Skočibušić

Institute for Public Health Federations of Bosnia and Herzegovina

BACKGROUND

The full health impact of the COVID-19 pandemic is critical for evaluating the potential policy responses.

We have analyzed the impact of COVID-19 on premature mortality by calculating the Years of Life Lost (YLL) in the Federation of Bosnia and Herzegovina in 2020-2021.

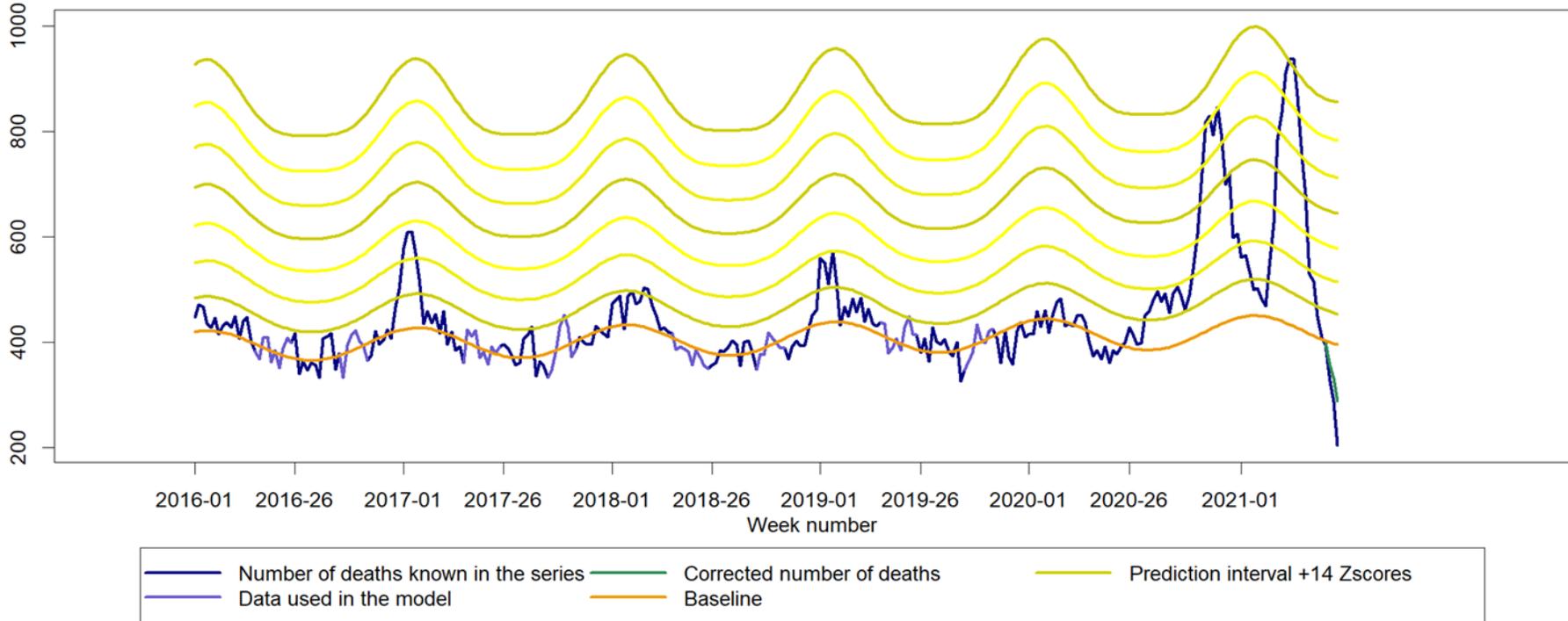
In 2019 the reported number of death was 22,024, and during the pandemic period in 2020 and 2021, 26,026 and 29,086 deaths were reported respectively.

In 2020, 4,115 more deaths has been reported (15,8%), and in 2021 more 6,438 death (22,1%) compared with period 2016-2019.

In FBiH in 2021, the death rate per 100,000 inhabitants was 1,341.2 and it is recorded an increase compared to 2020 when it had a value of 1,208.3 while in 2016 the value was 951.7

EuroMOMO

Mortality in Bosnia-Herzegovina - Age group Total years - week 25-2021
Crude mortality, MOMO v4-3 Model LINES_SIN



METHODS

YLLs are calculated by subtracting the age at death from the longest possible life expectancy for a person at that age.

For calculation YYL used the number of COVID-19 deaths, obtained from the Institute for Statistics of the Federation of Bosnia and Herzegovina, multiplied by the life expectancy from Global Burden of Disease (GBD 2019), this allows comparisons by age groups as well as with other countries, and population size used to calculate YLL per 100 000.

METHODS

- Number of COVID-19 deaths (by age and sex. Also over time & region)
- Life expectancy (GBD 2019)
- Population size: to calculate YLL per 100 000.

This allows comparisons by age groups within countries

- Standard population (World Standard Population): to calculate age standardised YLL. This allows comparisons by across countries (in a hypothetical situation)



Total YLL by age & sex



Remember: same LE in GBD for males & females



MALES	
Age group	# of COVID-19 deaths
0-4	0
5 to 9	0
10 to 14	1
15 to 19	0
20 to 24	4
25 to 29	16
30 to 34	11
35 to 39	24

X

MALES	
Age group	Life expectancy (GBD 2019)
0-4	88,9
5 to 9	84,0
10 to 14	79,0
15 to 19	74,1
20 to 24	69,1
25 to 29	64,1
30 to 34	59,2
35 to 39	54,3

=

Total Number YLL

Age-group	YLL Total
0-4	0
5 to 9	0
10 to 14	69
15 to 19	0
20 to 24	242
25 to 29	1.012
30 to 34	674
35 to 39	1.283



YLL per 100 000 population



Total Number YLL

Age-group	YLL Total
0-4	0
5 to 9	0
10 to 14	69
15 to 19	0
20 to 24	242
25 to 29	1.012
30 to 34	674
35 to 39	1.283

National population

MALES	
Age group	German population
0-4	2.036.084
5 to 9	1.944.171
10 to 14	1.916.110
15 to 19	1.991.487
20 to 24	2.394.221
25 to 29	2.552.806
30 to 34	2.876.938
35 to 39	2.688.873

X 100 000 =

YLL per 100 000 population

Age-group	YLL per 100 000
0-4	0
5 to 9	0
10 to 14	4
15 to 19	0
20 to 24	10
25 to 29	40
30 to 34	23
35 to 39	48



Age-standardised YLL



Remember: identical age structure for male & female

Total Number YLL

Age-group	YLL Total
0-4	0
5 to 9	0
10 to 14	69
15 to 19	0
20 to 24	242
25 to 29	1.012
30 to 34	674
35 to 39	1.283

National population

MALES	
Age group	German population
0-4	2.036.084
5 to 9	1.944.171
10 to 14	1.916.110
15 to 19	1.991.487
20 to 24	2.394.221
25 to 29	2.552.806
30 to 34	2.876.938
35 to 39	2.688.873

World standard pop

BOTH SEXES	
Age group	World Standard Population
0-4	12.000
5 to 9	10.000
10 to 14	9.000
15 to 19	9.000
20 to 24	8.000
25 to 29	8.000
30 to 34	6.000
35 to 39	6.000

Age standardised YLL

Age-group	Age standardised YLLs
0-4	1
5 to 9	0
10 to 14	0
15 to 19	0
20 to 24	1
25 to 29	2
30 to 34	1
35 to 39	2

(

/

)

X

=

RESULTS

YLL Calculations Template. 2020

Enter your data into the cells in yellow! The template will then calculate the results for you!

MALES				
Age group	# of COVID-19 deaths	Population size	Life expectancy (GBD 2019)	World Standard Population
0-4	0	47.199	88,9	12.000
5 to 9	0	54.398	84,0	10.000
10 to 14	0	60.034	79,0	9.000
15 to 19	1	60.717	74,1	9.000
20 to 24	1	77.586	69,1	8.000
25 to 29	3	74.375	64,1	8.000
30 to 34	3	81.217	59,2	6.000
35 to 39	14	81.502	54,3	6.000
40 to 44	20	78.115	49,3	6.000
45 to 49	42	75.231	44,4	6.000
50 to 54	69	76.476	39,6	5.000
55 to 59	132	80.164	34,9	4.000
60 to 64	189	72.620	30,3	4.000
65 to 69	278	58.656	25,7	3.000
70 to 74	294	39.259	21,3	2.000
75 to 79	236	23.129	17,1	1.000
80 to 84	235	19.109	13,2	500
85 plus	178	12.762	10,0	500
All Ages	1.695	1.072.549	-	100.000

Age group	YLL	YLL per 100 000 (rate)	Age Standardised YLL (rate)
0-4	0	0	0
5 to 9	0	0	0
10 to 14	0	0	0
15 to 19	74	122	11
20 to 24	69	89	7
25 to 29	192	259	21
30 to 34	178	219	13
35 to 39	760	932	56
40 to 44	986	1.263	76
45 to 49	1.866	2.481	149
50 to 54	2.735	3.576	179
55 to 59	4.609	5.749	230
60 to 64	5.718	7.874	315
65 to 69	7.139	12.171	365
70 to 74	6.259	15.942	319
75 to 79	4.036	17.452	175
80 to 84	3.111	16.281	81
85 plus	1.778	13.934	70
All Ages	39.511	3.684	3.684

FEMALES				
Age group	# of COVID-19 deaths	Population size	Life expectancy (GBD 2019)	World Standard Population
0-4	0	44.190	88,9	12.000
5 to 9	0	51.686	84,0	10.000
10 to 14	0	56.759	79,0	9.000
15 to 19	1	57.420	74,1	9.000
20 to 24	3	73.744	69,1	8.000
25 to 29	2	71.119	64,1	8.000
30 to 34	2	77.153	59,2	6.000
35 to 39	6	78.601	54,3	6.000
40 to 44	2	77.334	49,3	6.000
45 to 49	10	76.682	44,4	6.000
50 to 54	24	78.690	39,6	5.000
55 to 59	45	85.010	34,9	4.000
60 to 64	70	79.741	30,3	4.000
65 to 69	134	68.708	25,7	3.000
70 to 74	170	50.864	21,3	2.000
75 to 79	171	33.154	17,1	1.000
80 to 84	182	29.303	13,2	500
85 plus	148	21.973	10,0	500
All Ages	970	1.112.131	-	100.000

Age group	YLL	YLL per 100 000 (rate)	Age Standardised YLL (rate)
0-4	0	0	0
5 to 9	0	0	0
10 to 14	0	0	0
15 to 19	74	129	12
20 to 24	207	281	22
25 to 29	128	180	14
30 to 34	118	153	9
35 to 39	326	414	25
40 to 44	99	128	8
45 to 49	444	579	35
50 to 54	951	1.209	60
55 to 59	1.571	1.848	74
60 to 64	2.118	2.656	106
65 to 69	3.441	5.008	150
70 to 74	3.619	7.115	142
75 to 79	2.925	8.822	88
80 to 84	2.409	8.223	41
85 plus	1.479	6.729	34
All Ages	19.910	1.790	1.790

2020 FBiH

BOTH SEXES								
Age group	# of COVID-19 deaths	Population size	Life expectancy (GBD 2019)	World Standard Population	Age group	YLL	YLL per 100 000 (rate)	Age Standardised YLL (rate)
0-4	0	91.389	88,9	12.000	0-4	0	0	0
5 to 9	0	106.084	84,0	10.000	5 to 9	0	0	0
10 to 14	0	116.793	79,0	9.000	10 to 14	0	0	0
15 to 19	2	118.137	74,1	9.000	15 to 19	148	125	11
20 to 24	4	151.330	69,1	8.000	20 to 24	276	183	15
25 to 29	5	145.494	64,1	8.000	25 to 29	321	220	18
30 to 34	5	158.370	59,2	6.000	30 to 34	296	187	11
35 to 39	20	160.103	54,3	6.000	35 to 39	1.085	678	41
40 to 44	22	155.449	49,3	6.000	40 to 44	1.085	698	42
45 to 49	52	151.913	44,4	6.000	45 to 49	2.311	1.521	91
50 to 54	93	155.166	39,6	5.000	50 to 54	3.686	2.376	119
55 to 59	177	165.174	34,9	4.000	55 to 59	6.180	3.741	150
60 to 64	259	152.361	30,3	4.000	60 to 64	7.836	5.143	206
65 to 69	412	127.364	25,7	3.000	65 to 69	10.581	8.307	249
70 to 74	464	90.123	21,3	2.000	70 to 74	9.878	10.960	219
75 to 79	407	56.283	17,1	1.000	75 to 79	6.961	12.368	124
80 to 84	417	48.412	13,2	500	80 to 84	5.521	11.403	57
85 plus	326	34.735	10,0	500	85 plus	3.257	9.376	47
All Ages	2.665	2.184.680	-	100.000	All Ages	59.420	2.720	2.720

2021 FBiH

BOTH SEXES									
Age group	# of COVID-19 deaths	Population size	Life expectancy (GBD 2019)	World Standard Population	Age group	YLL	YLL per 100 000 (rate)	Age Standardised YLL (rate)	
0-4	0	89.236	88,9	12.000	0-4	0	0	0	
5 to 9	0	102.040	84,0	10.000	5 to 9	0	0	0	
10 to 14	0	116.451	79,0	9.000	10 to 14	0	0	0	
15 to 19	1	116.137	74,1	9.000	15 to 19	74	64	6	
20 to 24	10	141.134	69,1	8.000	20 to 24	691	490	39	
25 to 29	10	148.254	64,1	8.000	25 to 29	641	433	35	
30 to 34	14	157.693	59,2	6.000	30 to 34	829	526	32	
35 to 39	38	159.296	54,3	6.000	35 to 39	2.062	1.294	78	
40 to 44	53	155.334	49,3	6.000	40 to 44	2.614	1.683	101	
45 to 49	87	152.636	44,4	6.000	45 to 49	3.866	2.533	152	
50 to 54	160	151.826	39,6	5.000	50 to 54	6.342	4.177	209	
55 to 59	316	162.987	34,9	4.000	55 to 59	11.033	6.769	271	
60 to 64	570	154.198	30,3	4.000	60 to 64	17.244	11.183	447	
65 to 69	854	131.006	25,7	3.000	65 to 69	21.931	16.741	502	
70 to 74	1.074	93.597	21,3	2.000	70 to 74	22.864	24.428	489	
75 to 79	913	53.719	17,1	1.000	75 to 79	15.616	29.069	291	
80 to 84	1.030	46.382	13,2	500	80 to 84	13.636	29.399	147	
85 plus	765	36.676	10,0	500	85 plus	7.642	20.838	104	
All Ages	5.895	2.168.602	-	100.000	All Ages	127.085	5.860	5.860	

RESULTS

During the year 2020 39,511 years of life was lost by men, whereas women lost 19,910 years of life, and a total of 59,420 YLL, 2,720 YLL per 100 000 (total rate).

In the year 2021 men lost 72,503 years of life, women lost 54,582 years of life, which is a total of 127,085 YLL, 5,860 YLL per 100 000 (total rate).

In comparison with other results from studies in 81 countries, a total of 20,507,518 years of life have been lost to COVID-19, due to 1,279,866 deaths from the disease.

CONCLUSION

From a public health standpoint, years of life lost is crucial as it assesses how much life has been cut short for populations that have been affected by the disease.

YLL is very closely associated with COVID-19 deaths in the country, and during the pandemic period, men lost 1.5 more YLL in comparison to women in the Federations of BiH.

Thanks for attentions!
