

WEB MATERIAL

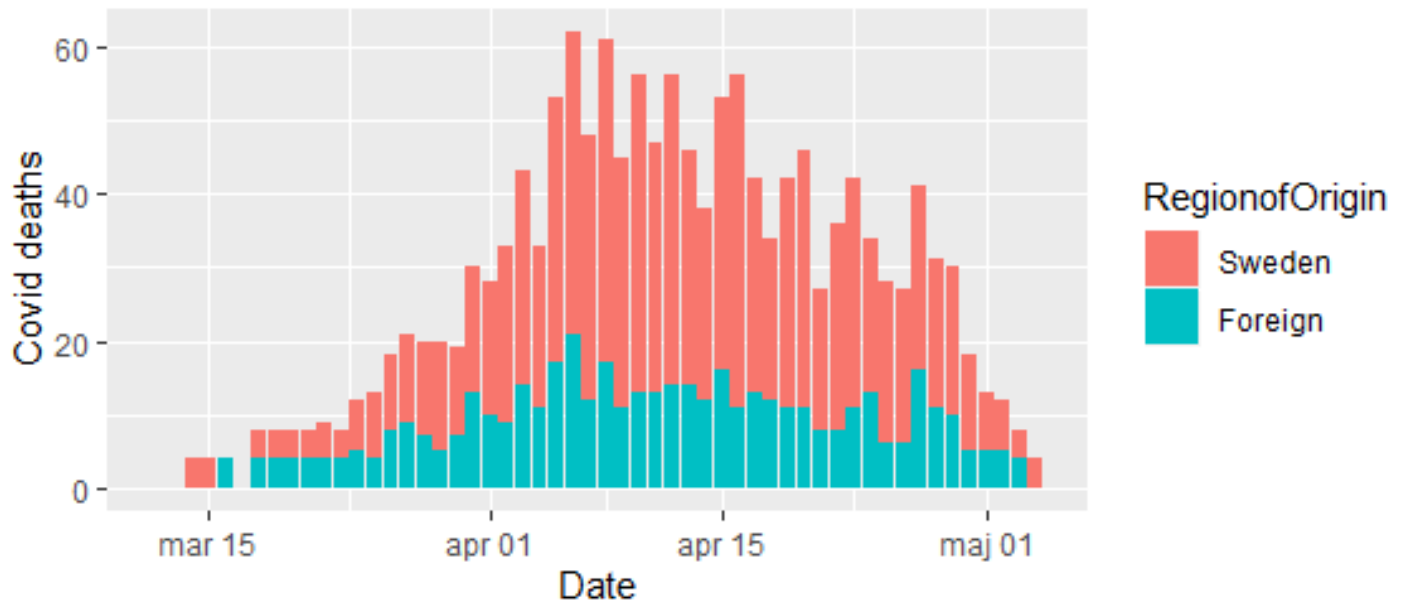
Disparities in Coronavirus Disease 2019 Mortality by Country of Birth in Stockholm, Sweden: A Total-Population–Based Cohort Study

Mikael Rostila, Agneta Cederström, Matthew Wallace, Maria Brandén, Bo Malmberg, and Gunnar Andersson

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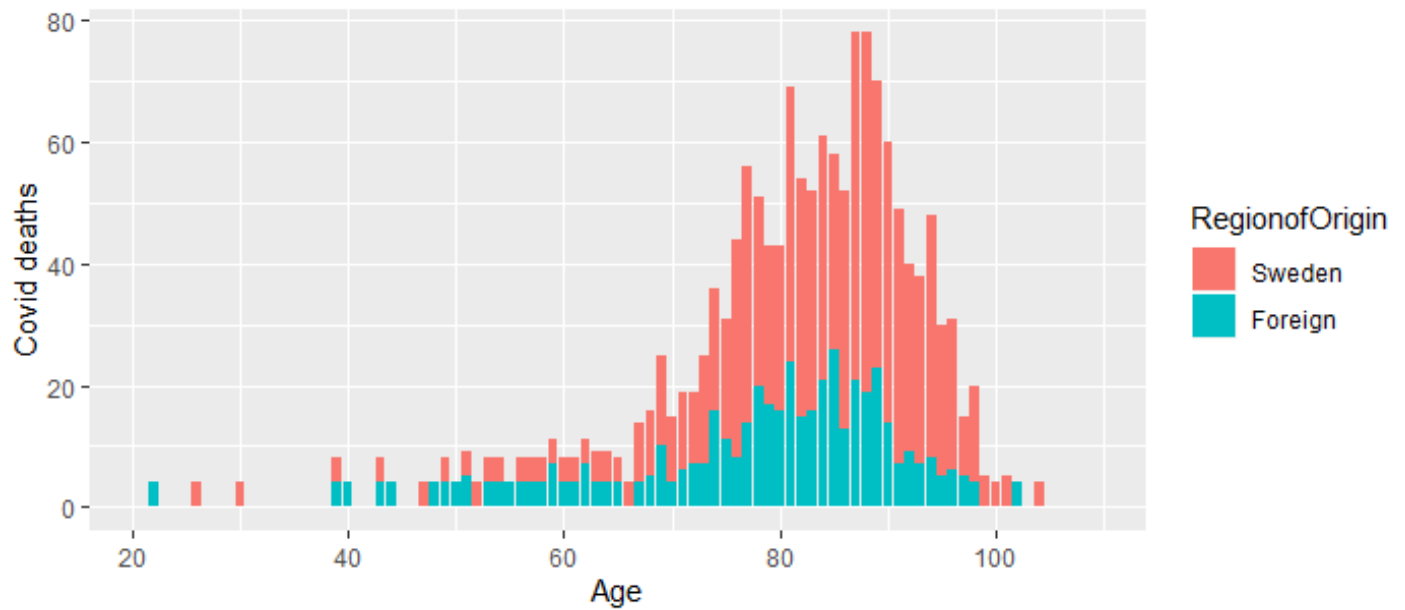
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Web Figure 1. Distribution of COVID-19 Deaths by Day Between the First Recorded Death in Stockholm County (March 14) and May 4 by Nativity Status.

Footnotes:

- a. Single dates with less than 5 deaths are set to 4 to meet the requirements of our data provider.
- b. Nativity status defined as being born in Sweden vs. being born in any other country.
- c. *Source:* Authors' calculations were based upon Swedish registers from the "Ageing Well" project.



Web Figure 2. Distribution of COVID-19 Deaths by Age Between the First Recorded Death in Stockholm County (March 14) and May 4 by Nativity Status.

Footnotes:

- a. Single dates with less than 5 deaths are set to 4 to meet the requirements of our data provider.
- b. Nativity status defined as being born in Sweden vs. being born in any other country.
- c. *Source:* Authors' calculations were based upon Swedish registers from the "Ageing Well" project.



Web Figure 3. Proportion of COVID-19 Deaths by Birth Country in Each Age Group in Stockholm County

Footnotes:

- a. *Source:* Authors' calculations were based upon Swedish registers from the "Ageing Well" project.

Web Table 1. Proportion of the Excess Relative Risk for COVID-19 Deaths by Birth Country in Stockholm, Sweden (Relative to Swedish-Born), January 31–May 4, 2020, Explained Across Multilevel Poisson Regression Models

Birth Country	Model 1	Model 2		Model 3		Total Excess Risks Explained Across Models
	RR	RR	Excess Risk Explained by Model 2	RR	Excess Risk Explained by Model 3	
Grouped						
Other Nordic	1.46	1.29	36%	1.25	8%	45%
Europe	1.03	0.94	100%	0.91	-	100%
Middle East	3.15	2.37	36%	1.96	19%	56%
Africa	3.04	2.40	32%	1.70	34%	66%
Rest of World	1.17	1.02	91%	0.84	9%	100%
Detailed						
Baltic States	1.33	1.29	11%	1.38	-28%	-16%
Chile	1.68	1.40	41%	0.97	59%	100%
Finland	1.56	1.37	34%	1.33	6%	40%
DACH	0.84	0.80	-24%	0.89	53%	30%
Greece	1.58	1.26	56%	0.88	44%	100%
Iran	2.55	2.14	26%	1.47	43%	70%
Iraq	2.43	1.86	40%	1.66	13%	54%
Lebanon	5.92	4.48	29%	4.03	9%	38%
Norway	1.09	1.03	69%	0.97	31%	100%
Poland	1.11	1.02	84%	0.92	16%	100%
Somalia	8.88	6.74	27%	4.35	30%	57%
Syria	4.70	3.49	33%	2.94	15%	48%
Turkey	3.05	2.35	34%	1.99	17%	52%

Footnotes:

Abbreviations: DeSO – Demographic Statistical Areas; RR – relative risk.

- DACH includes Germany, Austria, and Switzerland; Baltic States include Estonia, Latvia, and Lithuania; Greece also includes Cyprus.
- Model 1 adjusts for age, sex, and birth country.
- Model 2 additionally adjusts for education level, being employed, and disposable income.
- Model 3 further adjusts for housing type, number of working age individuals in household, and population density at the DeSO level.
- Source:* Authors' calculations were based upon Swedish registers from the “Ageing Well” project.

Web Table 2. Multilevel Poisson Regression Models of COVID-19 Deaths in Stockholm, Sweden, January 31–May 4, 2020, Adjusting for Each Predictor Separately With Corresponding % Change in Relative Risk by Birth Country

Predictor	RR	95% CI	P	% Change	Model	RR	95% CI	P	% Change
Model 1: Country of birth only					Model 5: Housing type				
Sweden	1				Sweden	1			
Other Nordic	1.46	1.21 , 1.75	***	-	Other Nordic	1.42	1.18 , 1.70	***	2.65
Europe	1.03	0.85 , 1.26			Europe	1.05	0.86 , 1.29		-1.91
Middle East	3.15	2.63 , 3.77	***		Middle East	3.26	2.71 , 3.91	***	-3.38
Africa	3.04	2.17 , 4.28	***		Africa	3.09	2.20 , 4.35	***	-1.56
Rest of World	1.17	0.83 , 1.66			Rest of World	1.19	0.84 , 1.68		-1.31
Model 2: Disposable income					Model 6: No. of working age individuals in HH				
Sweden	1				House, apt.	1			
Other Nordic	1.34	1.12 , 1.62	***	7.75	Other inc. care	5.15	4.51 , 5.89	***	-
Europe	0.94	0.77 , 1.15		8.79	Missing	0.91	0.80 , 1.04		-
Middle East	2.53	2.09 , 3.06	***	19.62	Sweden	1			
Africa	2.51	1.78 , 3.55	***	17.41	Other Nordic	1.46	1.21 , 1.77	***	-0.44
Rest of World	1.01	0.71 , 1.43		14.11	Europe	1.07	0.87 , 1.31		-2.93
Most	1				Middle East	3.00	2.47 , 3.63	***	4.78
More	0.89	0.68 , 1.17			Africa	2.86	2.01 , 4.07	***	5.97
Less	1.58	1.28 , 1.95	***		Rest of World	1.12	0.78 , 1.61		4.28
Least	1.93	1.56 , 2.39	***		0	1			
Missing	0.68	0.09 , 4.90			1-2	1.22	1.04 , 1.43	**	-
Model 3: Education level					Model 7: Population density				
Sweden	1				3+	1.61	1.20 , 2.15	***	-
Other Nordic	1.37	1.14 , 1.65	***	5.68	Sweden	1			
Europe	1.02	0.83 , 1.25		1.47	Other Nordic	1.43	1.18 , 1.74	***	1.75
Middle East	2.88	2.35 , 3.52	***	8.53	Europe	1.03	0.84 , 1.26		0.54
Africa	2.84	2.00 , 4.02	***	6.86	Middle East	2.53	2.05 , 3.11	***	19.78
Rest of World	1.16	0.81 , 1.64		1.22	Africa	2.34	1.64 , 3.35	***	23.08
Tertiary	1				Rest of World	1.04	0.72 , 1.49		11.29
Secondary	1.47	1.28 , 1.68	***		Least	1			
Primary	1.59	1.37 , 1.83	***		Less	1.14	0.90 , 1.45		-
Missing	1.56	1.19 , 2.04	***		Middle	1.42	1.12 , 1.80	***	-
Model 4: Employed					Model 7: Population density				
Sweden	1				More	1.80	1.42 , 2.27	***	-
Other Nordic	1.39	1.15 , 1.66	***	4.91	Most	1.63	1.28 , 2.08	***	-
Europe	0.99	0.81 , 1.21		4.39					
Middle East	2.79	2.33 , 3.35	***	11.27					
Africa	2.74	1.95 , 3.86	***	9.85					
Rest of World	1.10	0.77 , 1.56		6.22					
Yes	1								
No	3.12	2.53 , 3.86	***	-					

Footnotes:

Abbreviations: HH – household; RR – relative risk.

RRs significant to $P < 0.01$ (***), $P < 0.05$ (**), and $P < 0.10$ (*).

- a. Age and sex are adjusted in all models.
- b. *Source:* Authors' calculations were based upon Swedish registers from the "Ageing Well" project.

Web Table 3. Multilevel Poisson Regression Models for COVID-19 Deaths in Stockholm, Sweden, January 31–May 4, 2020

Predictor	Model 1			Model 2			Model 3		
	RR	95% CI	P	RR	95% CI	P	RR	95% CI	P
Sex									
Female	1			1			1		
Male	1.69	1.53 , 1.88	***	1.82	1.64 , 2.02	***	2.10	1.88 , 2.35	***
Age									
21-39	1			1			1		
40-49	3.09	1.10 , 8.68	**	3.43	1.22 , 9.64	**	2.94	0.99 , 8.77	**
50-59	16.46	7.00 , 38.72	***	16.78	7.12 , 39.55	***	16.51	6.99 , 38.98	***
60-64	40.93	17.35 , 96.57	***	35.06	14.82 , 82.91	***	37.26	15.75 , 88.15	***
65-69	89.59	38.96 , 206.04	***	56.39	24.35 , 130.58	***	83.56	35.84 , 194.83	***
70-74	167.09	73.63 , 379.15	***	85.85	37.47 , 196.70	***	144.16	62.37 , 333.21	***
75-79	452.55	201.04 , 1 018.73	***	211.80	93.06 , 482.03	***	358.51	155.86 , 824.65	***
80-84	960.58	427.51 , 2 158.33	***	414.84	182.37 , 943.64	***	655.24	284.83 , 1 507.39	***
85+	2 430.04	1 085.83 , 5 438.35	***	993.07	437.84 , 2 252.41	***	1 197.74	521.72 , 2 749.72	***
Country of birth									
Sweden	1			1			1		
Other Nordic	1.46	1.21 , 1.75	***	1.29	1.07 , 1.55	***	1.25	1.03 , 1.52	**
Europe	1.03	0.85 , 1.26		0.94	0.76 , 1.15		0.91	0.74 , 1.12	
Middle East	3.15	2.63 , 3.77	***	2.37	1.92 , 2.93	***	1.96	1.56 , 2.46	***
Africa	3.04	2.17 , 4.28	***	2.40	1.68 , 3.41	***	1.70	1.17 , 2.47	***
Rest of the World	1.17	0.83 , 1.66		1.02	0.71 , 1.45		0.84	0.58 , 1.22	
Education level									
Post-secondary				1			1		
Secondary				1.29	1.12 , 1.48	***	1.26	1.09 , 1.46	***
Primary				1.32	1.14 , 1.53	***	1.24	1.06 , 1.45	***
Missing				1.39	1.06 , 1.82	**	1.21	0.91 , 1.61	
Disposable Income									
Q4, Most				1			1		
Q3, More				0.83	0.63 , 1.09		1.03	0.77 , 1.37	
Q2, Less				1.21	0.97 , 1.50	*	1.35	1.07 , 1.71	***
Q1, Least				1.33	1.06 , 1.66	***	1.49	1.18 , 1.90	***
Missing				0.32	0.04 , 2.34		0.42	0.06 , 3.21	

Employed										
Yes		1				1				
No	2.67	2.15	,	3.32	***	2.27	1.81	,	2.84	***
Housing type										
House or apartment						1				
Special housing incl. care						5.93	5.07	,	6.94	***
Missing						0.86	0.71	,	1.03	
No. working age in HH										
0						1				
1-2						1.61	1.36	,	1.90	***
3+						2.32	1.72	,	3.12	***
Population density (DeSO)										
Q1, Least						1				
Q2, Less						1.10	0.87	,	1.38	
Q3, Middle						1.28	1.02	,	1.61	**
Q4, More						1.67	1.31	,	2.11	***
Q5, Most						1.59	1.24	,	2.04	***

Footnotes:

Abbreviations: CI – confidence interval; DeSO – Demographic Statistical Areas; HH – household; incl. – including; no. – number; RR – relative risk.

RRs significant to $P < 0.01$ (***), $P < 0.05$ (**), and $P < 0.10$ (*).

- a. The relative risks reported in this table are displayed in manuscript Figure 1.
- b. Model 1 adjusts for age, sex, and birth country.
- c. Model 2 additionally adjusts for education level, being employed, and disposable income.
- d. Model 3 further adjusts for housing type, number of working age individuals in household, and population density at the DeSO level.
- e. *Source:* Authors' calculations were based upon Swedish registers from the “Ageing Well” project.

Web Table 4. Multilevel Poisson Regression Models for Deaths From All Other Causes in Stockholm, Sweden, January 31–May 4, 2020

Predictor	Model 1			Model 2			Model 3		
	RR	95% CI	<i>P</i>	RR	95% CI	<i>P</i>	RR	95% CI	<i>P</i>
Sex									
Female	1			1			1		
Male	1.40	1.32 , 1.49	***	1.50	1.41 , 1.59	***	1.62	1.52 , 1.73	***
Age									
21-39	1			1			1		
40-49	1.70	1.26 , 2.29	***	1.95	1.44 , 2.64	***	1.96	1.43 , 2.68	***
50-59	5.13	4.02 , 6.53	***	5.46	4.27 , 6.96	***	5.83	4.54 , 7.48	***
60-64	11.43	8.92 , 14.64	***	10.42	8.12 , 13.38	***	10.87	8.42 , 14.04	***
65-69	18.77	14.85 , 23.73	***	13.02	10.23 , 16.57	***	15.38	11.90 , 19.87	***
70-74	32.62	26.15 , 40.69	***	18.68	14.83 , 23.54	***	23.03	17.91 , 29.62	***
75-79	55.27	44.42 , 68.77	***	28.94	22.99 , 36.43	***	35.02	27.19 , 45.11	***
80-84	110.97	89.39 , 137.77	***	53.81	42.78 , 67.70	***	62.27	48.35 , 80.22	***
85+	331.60	269.33 , 408.26	***	151.28	121.04 , 189.09	***	143.36	111.88 , 183.70	***
Country of birth									
Sweden	1			1			1		
Other Nordic	1.14	1.02 , 1.28	**	1.00	0.89 , 1.12		0.96	0.85 , 1.08	
Europe	0.89	0.79 , 1.00	**	0.79	0.70 , 0.89	***	0.80	0.70 , 0.90	***
Middle East	0.92	0.78 , 1.09		0.66	0.55 , 0.78	***	0.66	0.55 , 0.79	***
Africa	0.92	0.68 , 1.24		0.69	0.51 , 0.93	***	0.65	0.48 , 0.89	***
Rest of the World	0.71	0.57 , 0.89	***	0.59	0.47 , 0.74	***	0.60	0.48 , 0.76	***
Education level									
Post-secondary				1			1		
Secondary				1.23	1.13 , 1.33	***	1.18	1.09 , 1.28	***
Primary				1.45	1.33 , 1.59	***	1.35	1.24 , 1.48	***
Missing				1.41	1.16 , 1.71	***	1.34	1.10 , 1.63	***
Disposable Income									
Q4, Most				1			1		
Q3, More				1.26	1.09 , 1.45	***	1.37	1.18 , 1.58	***
Q2, Less				1.40	1.23 , 1.58	***	1.49	1.31 , 1.70	***
Q1, Least				1.66	1.46 , 1.88	***	1.76	1.54 , 2.01	***
Missing				0.19	0.05 , 0.76	**	0.24	0.06 , 0.91	**

Employed						
Yes	1				1	
No	2.19	1.96	,	2.45 ***	1.94	1.73 , 2.18 ***
Housing type						
House or apartment					1	
Special housing incl. care					3.75	3.42 , 4.11 ***
Missing					0.86	0.78 , 0.94 ***
No. working age in HH						
0					1	
1-2					1.17	1.05 , 1.31 ***
3+					1.09	0.90 , 1.32
Population density (DeSO)						
Q1, Least					1	
Q2, Less					1.01	0.91 , 1.12
Q3, Middle					1.05	0.94 , 1.17
Q4, More					1.09	0.97 , 1.22
Q5, Most					1.03	0.91 , 1.17

Footnotes:

Abbreviations: CI – confidence interval; DeSO – Demographic Statistical Areas; HH – household; incl. – including; no. – number; RR – relative risk.

RRs significant to $P < 0.01$ (***), $P < 0.05$ (**), and $P < 0.10$ (*).

- The relative risks reported in this table are displayed in manuscript Figure 1.
- Model 1 adjusts for age, sex, and birth country.
- Model 2 additionally adjusts for education level, being employed, and disposable income.
- Model 3 further adjusts for housing type, number of working age individuals in household, and population density at the DeSO level.
- Source:* Authors' calculations were based upon Swedish registers from the “Ageing Well” project.

Web Table 5. Number of Deaths From COVID-19 and All Other Causes, Population Sizes, and Time-at-Risk for Detailed Birth Country in Stockholm, Sweden, January 31–May 4, 2020

Birth Country	COVID-19 Deaths			All-Cause Deaths Minus COVID-19		
	Deaths	Population	Years at Risk	Deaths	Population	Years at Risk
Baltic States	14	12 540	3 189	22	12 540	3 189
Chile	12	13 842	3 521	23	13 842	3 521
Finland	111	47 079	11 945	278	47 079	11 945
DACH	23	14 565	3 697	76	14 565	3 697
Greece	11	8 737	2 222	14	8 737	2 222
Iran	27	28 236	7 185	32	28 236	7 185
Iraq	29	41 054	10 446	44	41 054	10 446
Lebanon	13	6 289	1 600	7	6 289	1 600
Norway	11	6 251	1 588	28	6 251	1 588
Poland	12	32 436	8 253	38	32 436	8 253
Somalia	19	10 522	2 676	12	10 522	2 676
Sweden	1 016	1 232 511	313 336	3 313	1 232 511	313 336
Syria	34	24 349	6 194	32	24 349	6 194
Turkey	31	22 915	5 828	33	22 915	5 828

Footnotes:

- a. We only show the countries of origin that recorded at least 10 covid-19 deaths between 31 Jan and 4 May 2020.
- b. DACH includes Germany, Austria, and Switzerland; Baltic States include Estonia, Latvia, and Lithuania; Greece also includes Cyprus.
- c. *Source:* Authors' calculations were based upon Swedish registers from the "Ageing Well" project.

Web Table 6. Multilevel Poisson Regression Models for COVID-19 Deaths in Stockholm, Sweden, January 31–May 4, 2020, According to Detailed Birth Country

Birth Country	Model 1			Model 2			Model 3		
	RR	95% CI	<i>P</i>	RR	95% CI	<i>P</i>	RR	95% CI	<i>P</i>
Sweden	1			1			1		
Baltic States	1.33	0.78 , 2.26		1.29	0.76 , 2.19		1.38	0.80 , 2.39	
Chile	1.68	0.95 , 2.97	*	1.40	0.79 , 2.48		0.97	0.50 , 1.86	
Finland	1.56	1.28 , 1.89	***	1.37	1.12 , 1.67	***	1.33	1.08 , 1.65	***
DACH	0.84	0.56 , 1.27		0.80	0.53 , 1.22		0.89	0.57 , 1.38	
Greece	1.58	0.87 , 2.87		1.26	0.69 , 2.29		0.88	0.46 , 1.72	
Iran	2.55	1.74 , 3.74	***	2.14	1.45 , 3.17	***	1.47	0.92 , 2.34	***
Iraq	2.43	1.68 , 3.52	***	1.86	1.25 , 2.77	***	1.66	1.09 , 2.54	**
Lebanon	5.92	3.42 , 10.24	***	4.48	2.58 , 7.80	***	4.03	2.24 , 7.25	***
Norway	1.09	0.60 , 1.97		1.03	0.57 , 1.86		0.97	0.50 , 1.85	
Poland	1.11	0.63 , 1.96		1.02	0.57 , 1.80		0.92	0.51 , 1.68	
Somalia	8.88	5.63 , 13.99	***	6.74	4.14 , 10.94	***	4.35	2.51 , 7.52	***
Syria	4.70	3.34 , 6.62	***	3.49	2.42 , 5.03	***	2.94	1.97 , 4.39	***
Turkey	3.05	2.14 , 4.37	***	2.35	1.62 , 3.40	***	1.99	1.33 , 2.98	***

Footnotes:

Abbreviations: CI – confidence interval; RR – relative risk.

R Rs significant to $P < 0.01$ (***), $P < 0.05$ (**), and $P < 0.10$ (*).

- The relative risks reported in this table are displayed in manuscript Figure 2.
- We only show the countries of origin that recorded at least 10 covid-19 deaths between 31 Jan and 4 May 2020.
- DACH includes Germany, Austria, and Switzerland; Baltic States include Estonia, Latvia, and Lithuania; Greece also includes Cyprus.
- Model 1 adjusts for age, sex, and birth country.
- Model 2 additionally adjusts for education level, being employed, and disposable income.
- Model 3 further adjusts for housing type, number of working age individuals in household, and population density at the DeSO level.
- We do not show the specific RRs for the other predictors in this table because the values are similar to those shown in the online Web Table 1.
- Source:* Authors' calculations were based upon Swedish registers from the “Ageing Well” project.

Web Table 7. Multilevel Poisson Regression Models for Deaths From all Other Causes (Minus COVID-19) in Stockholm, Sweden, January 31–May 4, 2020, According to Detailed Birth Country

Birth Country	Model 1			Model 2			Model 3		
	RR	95% CI	<i>P</i>	RR	95% CI	<i>P</i>	RR	95% CI	<i>P</i>
Sweden	1			1			1		
Baltic States	0.68	0.45 , 1.04	*	0.65	0.43 , 0.99	**	0.69	0.45 , 1.06	*
Chile	0.88	0.58 , 1.32		0.69	0.46 , 1.04	*	0.67	0.44 , 1.02	*
Finland	1.21	1.07 , 1.37	***	1.04	0.92 , 1.18		1.00	0.88 , 1.14	
Germanic States	0.93	0.74 , 1.17		0.90	0.72 , 1.13		0.96	0.76 , 1.22	
Greece & Cyprus	0.62	0.37 , 1.05	*	0.46	0.27 , 0.77	***	0.48	0.28 , 0.81	***
Iran	0.79	0.56 , 1.13		0.64	0.45 , 0.90	***	0.61	0.42 , 0.88	***
Iraq	0.96	0.71 , 1.30		0.67	0.49 , 0.91	***	0.67	0.48 , 0.92	***
Lebanon	0.84	0.40 , 1.77		0.58	0.27 , 1.22		0.61	0.29 , 1.30	
Norway	0.89	0.61 , 1.29		0.84	0.58 , 1.21		0.81	0.55 , 1.20	
Poland	0.91	0.66 , 1.26		0.80	0.58 , 1.10		0.77	0.55 , 1.08	
Somalia	1.39	0.79 , 2.45		0.93	0.52 , 1.65		0.99	0.55 , 1.77	
Syria	1.17	0.83 , 1.66		0.77	0.54 , 1.10		0.77	0.53 , 1.10	
Turkey	0.90	0.64 , 1.27		0.62	0.44 , 0.87	***	0.65	0.45 , 0.92	**

Footnotes:

Abbreviations: CI – confidence interval; RR – relative risk.

RRs significant to $P < 0.01$ (***), $P < 0.05$ (**), and $P < 0.10$ (*).

- The relative risks reported in this table are displayed in manuscript Figure 2.
- We only show the countries of origin that recorded at least 10 covid-19 deaths between 31 Jan and 4 May 2020.
- DACH includes Germany, Austria, and Switzerland; Baltic States include Estonia, Latvia, and Lithuania; Greece also includes Cyprus.
- Model 1 adjusts for age, sex, and birth country.
- Model 2 additionally adjusts for education level, being employed, and disposable income.
- Model 3 further adjusts for housing type, number of working age individuals in household, and population density at the DeSO level.
- We do not show the specific RRs for the other predictors in this table because the values are similar to those shown in the online Web Table 2.
- Source:* Authors’ calculations were based upon Swedish registers from the “Ageing Well” project.

Web Table 8. Multilevel Poisson Regression Models for COVID-19 Deaths in all of Sweden, January 31–May 4, 2020, Including a Region of Residence by Birth Country Interaction Term

Region of Residence by Birth Country	Model 1			Model 2			Model 3		
	RR	95% CI	P	RR	95% CI	P	RR	95% CI	P
Stockholm									
Sweden	1			1			1		
Other Nordic	1.46	1.21 , 1.75	***	1.29	1.08 , 1.55	***	1.27	1.05 , 1.54	***
Europe	1.04	0.85 , 1.26		0.96	0.78 , 1.17		0.96	0.78 , 1.18	
Middle East	3.13	2.61 , 3.75	***	2.35	1.93 , 2.88	***	2.10	1.71 , 2.59	***
Africa	3.00	2.14 , 4.21	***	2.41	1.70 , 3.41	***	1.96	1.37 , 2.80	***
Rest of the World	1.16	0.82 , 1.64		1.06	0.75 , 1.50		0.91	0.63 , 1.31	
Rest of Sweden									
Sweden	1			1			1		
Other Nordic	1.29	1.02 , 1.63	**	1.19	0.94 , 1.51		1.10	0.86 , 1.42	
Europe	1.20	0.93 , 1.54		1.12	0.87 , 1.44		1.07	0.82 , 1.39	
Middle East	3.75	2.79 , 5.02	***	2.85	2.10 , 3.87	***	2.58	1.89 , 3.53	***
Africa	8.46	5.63 , 12.70	***	6.72	4.44 , 10.18	***	5.58	3.64 , 8.56	***
Rest of the World	1.52	0.90 , 2.58		1.43	0.84 , 2.43		1.31	0.75 , 2.27	

Footnotes:

Abbreviations: CI – confidence interval; RR – relative risk.
RRs significant to $P < 0.01$ (***), $P < 0.05$ (**), and $P < 0.10$ (*).

- Model 1 adjusts for age, sex, and birth country.
- Model 2 additionally adjusts for education level, being employed, and disposable income.
- Model 3 further adjusts for housing type, number of working age individuals in household, and population density at the DeSO level.
- We do not show the specific RRs for the other predictors in this table because they are similar to those shown in Web Table 1.
- Source:* Authors' calculations were based upon Swedish registers from the “Ageing Well” project.

Web Table 9. Multilevel Poisson Regression Models for COVID-19 Deaths in Stockholm, Sweden, January 31–May 4, 2020, Including a sex by Birth Country Interaction Term

Sex by Birth Country	Model 1			Model 2			Model 3		
	RR	95% CI	P	RR	95% CI	P	RR	95% CI	P
Women									
Sweden	1			1			1		
Other Nordic	1.37	1.08 , 1.75	***	1.26	0.99 , 1.61	*	1.28	0.99 , 1.65	*
Europe	0.85	0.62 , 1.16		0.80	0.58 , 1.10		0.79	0.57 , 1.10	
Middle East	2.71	2.04 , 3.61	***	2.04	1.49 , 2.79	***	1.75	1.24 , 2.47	***
Africa	2.10	1.09 , 4.07	**	1.64	0.83 , 3.22		1.39	0.69 , 2.78	
Rest of the World	0.91	0.51 , 1.61		0.83	0.47 , 1.49		0.66	0.35 , 1.25	
Men									
Sweden	1			1			1		
Other Nordic	1.55	1.17 , 2.04	***	1.32	1.00 , 1.74	*	1.20	0.89 , 1.61	
Europe	1.21	0.93 , 1.57		1.09	0.84 , 1.42		1.00	0.77 , 1.31	
Middle East	3.53	2.79 , 4.45	***	2.63	2.03 , 3.40	***	2.08	1.59 , 2.72	***
Africa	3.66	2.46 , 5.45	***	2.95	1.97 , 4.42	***	1.91	1.25 , 2.91	***
Rest of the World	1.41	0.91 , 2.18		1.25	0.80 , 1.94		0.98	0.63 , 1.54	

Footnotes:

Abbreviations: CI – confidence interval; RR – relative risk.
RRs significant to $P < 0.01$ (***), $P < 0.05$ (**), and $P < 0.10$ (*).

- Model 1 adjusts for age, sex, and birth country.
- Model 2 additionally adjusts for education level, being employed, and disposable income.
- Model 3 further adjusts for housing type, number of working age individuals in household, and population density at the DeSO level.
- We do not show the specific RRs for the other predictors because the values are similar to those shown in Web Table 1.
- Source:* Authors' calculations were based upon Swedish registers from the “Ageing Well” project.

Web Table 10. Multilevel Poisson Regression Models for COVID-19 Deaths in Stockholm, Sweden, January 31–May 4, 2020, Stratified by Ages 65 and Under and 66 and Over

Age by Birth Country	Model 1			Model 2			Model 3		
	RR	95% CI	P	RR	95% CI	P	RR	95% CI	P
65 and under									
Sweden	1			1			1		
Other Nordic	2.43	1.03 , 5.72	**	1.77	0.75 , 4.17		2.07	0.87 , 4.92	
Europe	1.55	0.73 , 3.30		0.88	0.40 , 1.95		0.99	0.44 , 2.23	
Middle East	3.37	1.97 , 5.76	***	1.86	1.06 , 3.28	**	1.91	1.06 , 3.46	**
Africa	5.43	2.87 , 10.29	***	3.05	1.58 , 5.89	***	2.71	1.33 , 5.53	***
Rest of the World	1.85	0.84 , 4.12		1.20	0.53 , 2.72		1.23	0.53 , 2.85	
66 and over									
Sweden	1			1			1		
Other Nordic	1.42	1.18 , 1.71	***	1.28	1.06 , 1.54	***	1.22	1.00 , 1.49	**
Europe	1.01	0.82 , 1.24		0.94	0.76 , 1.16		0.91	0.73 , 1.12	
Middle East	3.16	2.60 , 3.83	***	2.53	2.02 , 3.18	***	2.01	1.57 , 2.58	***
Africa	2.55	1.68 , 3.85	***	2.13	1.39 , 3.27	***	1.54	0.99 , 2.40	*
Rest of the World	1.09	0.74 , 1.61		0.98	0.66 , 1.46		0.79	0.52 , 1.20	

Footnotes:

Abbreviations: CI – confidence interval; DeSO – Demographic Statistical Areas; RR – relative risk. RRs significant to $P < 0.01$ (***), $P < 0.05$ (**), and $P < 0.10$ (*).

- Model 1 adjusts for age, sex, and birth country.
- Model 2 additionally adjusts for education level, being employed, and disposable income.
- Model 3 further adjusts for housing type, number of working age individuals in household, and population density at the DeSO level.
- Source:* Authors' calculations were based upon Swedish registers from the “Ageing Well” project.