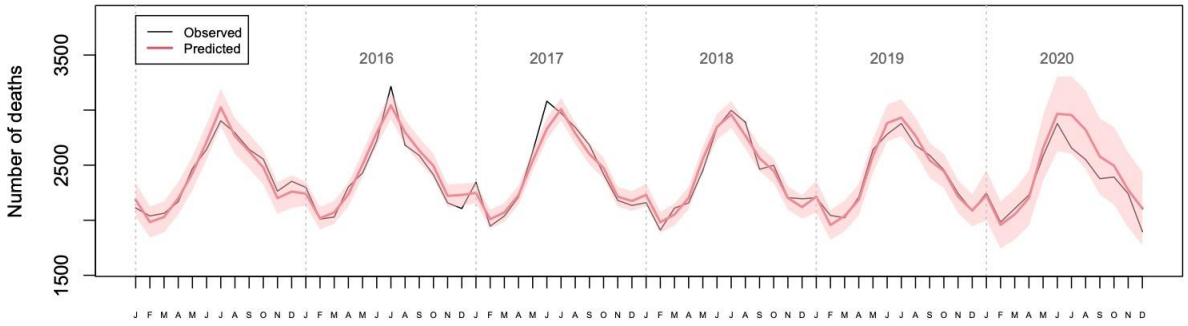
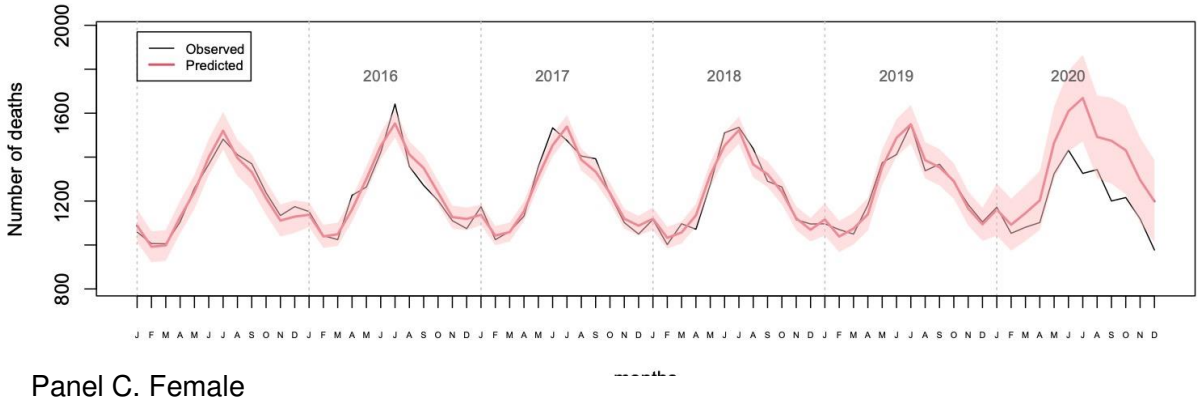
Supplementary material

Figure S.1.a. Observed and predicted numbers of cardiovascular deaths between 2015 and 2020, Chile.

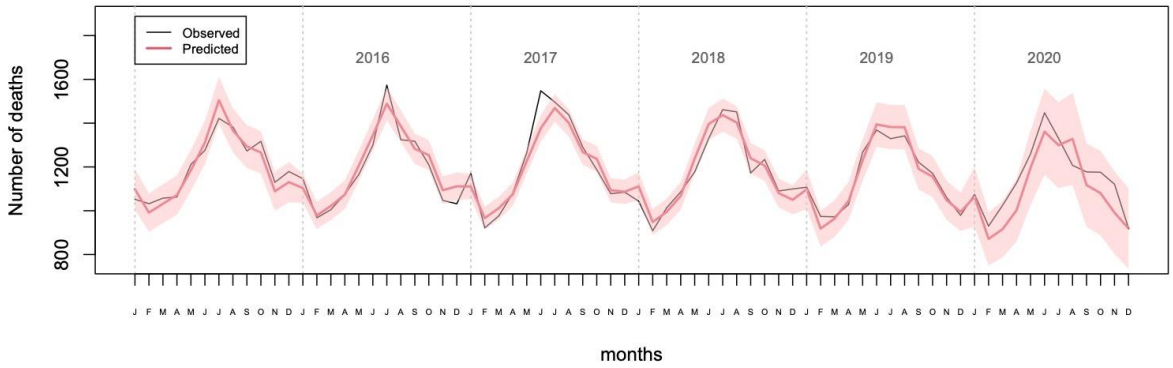
Panel A. Both sexes



Panel B. Male



Panel C. Female

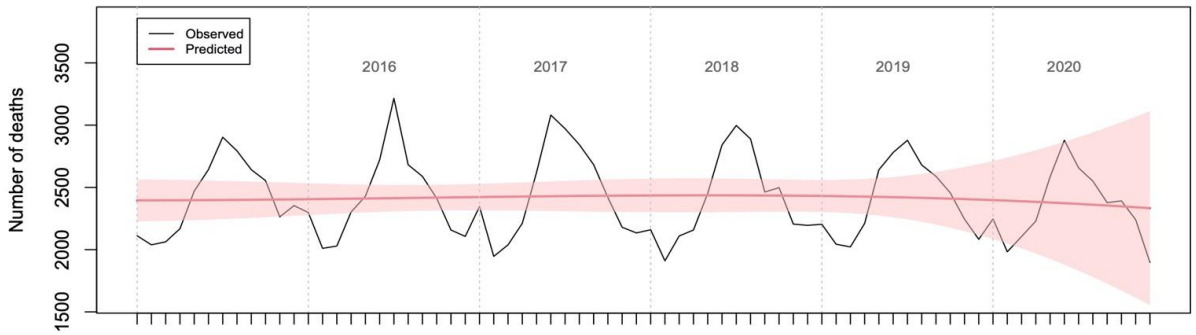


The selected model after the backward procedure for both sexes, men and female was the same:

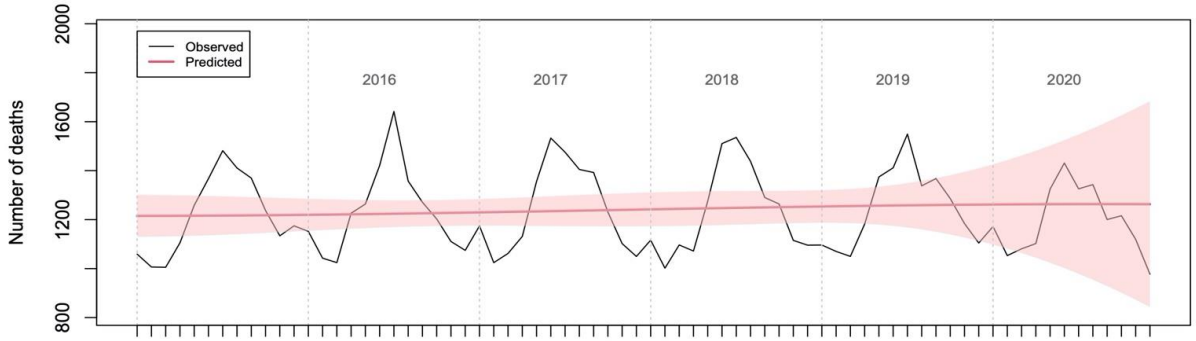
number of deaths = B_0intercept + B_1month^2 + B_2month^3 + B_3Feb + B_4Mar + B_5Apr + B_6May + B_7Jun + B_8Jul + B_9Aug + B_{10}Sep + B_{11}Oct + B_{12}Nov + B_{13}Dic + B_{14}year + B_{15}Feb:year + B_{17}Mar:year + B_{17}Apr:year + B_{18}May:year + B_{19}Jun:year + B_{20}Jul:year + B_{21}Aug:year + B_{22}Sep:year + B_{23}Oct:year + B_{24}Nov:year + B_{25}Dic:year

Figure S.1.b. Observed and predicted numbers of cardiovascular deaths between 2015 and 2020 without the inclusion of the seasonal component, Chile.

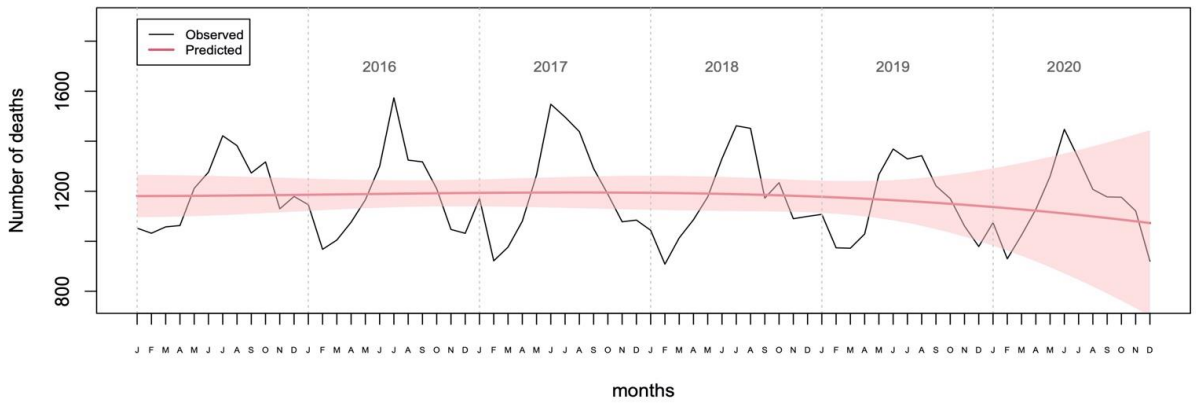
Panel A. Both sexes



Panel B. Male



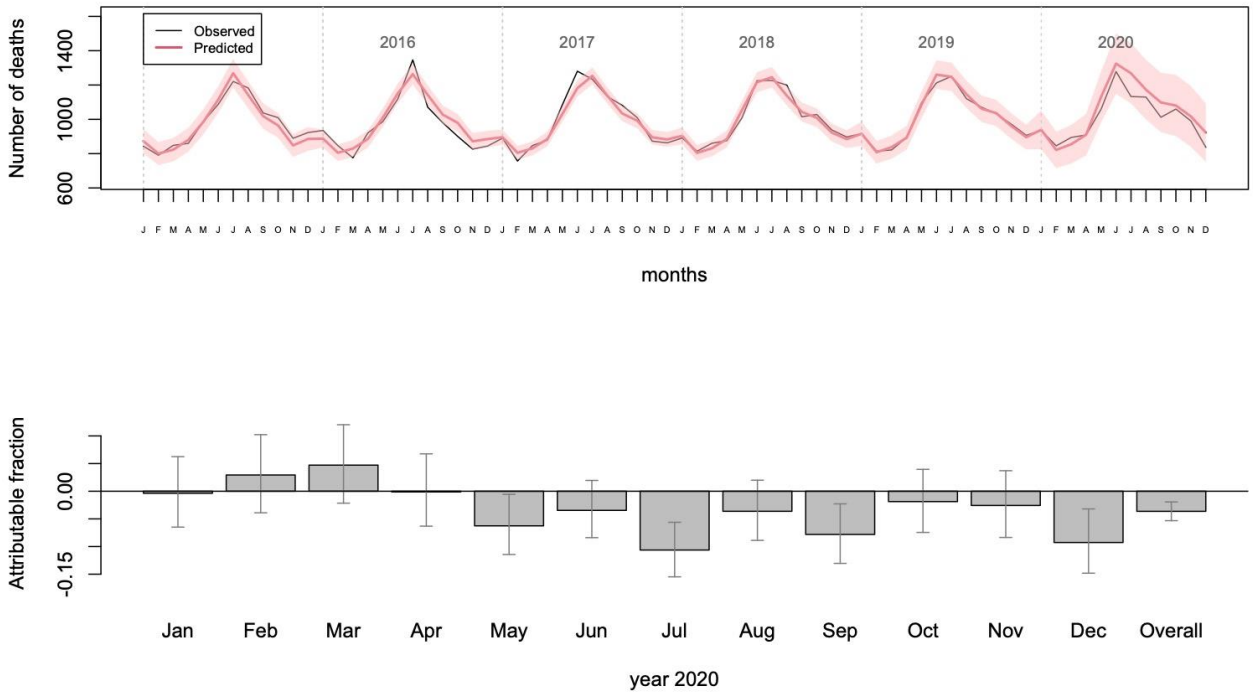
Panel C. Female



The selected after the backward procedure for both sexes, men and female, without seasonal component are represented by:

number of deaths = B_0intercept + B_1month^2 + B_2month^3

Figure S.2.a. Observed and predicted numbers of deaths from ischemic heart diseases between 2015 and 2020, and monthly attributable fraction for 2020. Chile



The selected model after the backward procedure was:

number of deaths = B_0intercept + B_1month^2 + B_2month^3 + B_3Feb + B_4Mar + B_5Apr + B_6May + B_7Jun + B_8Jul + B_9Aug + B_{10}Sep + B_{11}Oct + B_{12}Nov + B_{13}Dic + B_{14}year + B_{15}Feb:year + B_{17}Mar:year + B_{17}Apr:year + B_{18}May:year + B_{19}Jun:year + B_{20}Jul:year + B_{21}Aug:year + B_{22}Sep:year + B_{23}Oct:year + B_{24}Nov:year + B_{25}Dic:year

Figure S.2.b. Observed and predicted numbers of deaths from ischemic heart diseases between 2015 and 2020, without the seasonal component. Chile

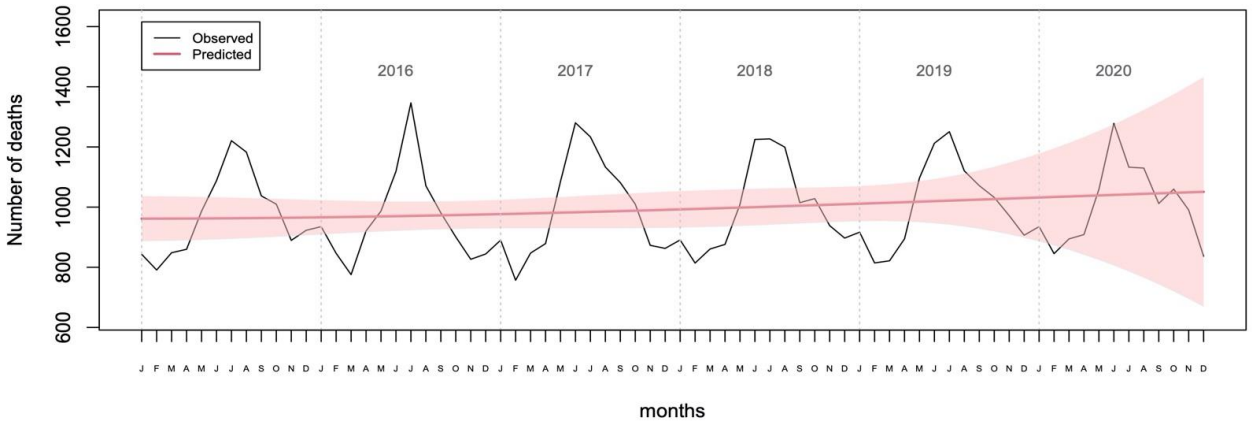
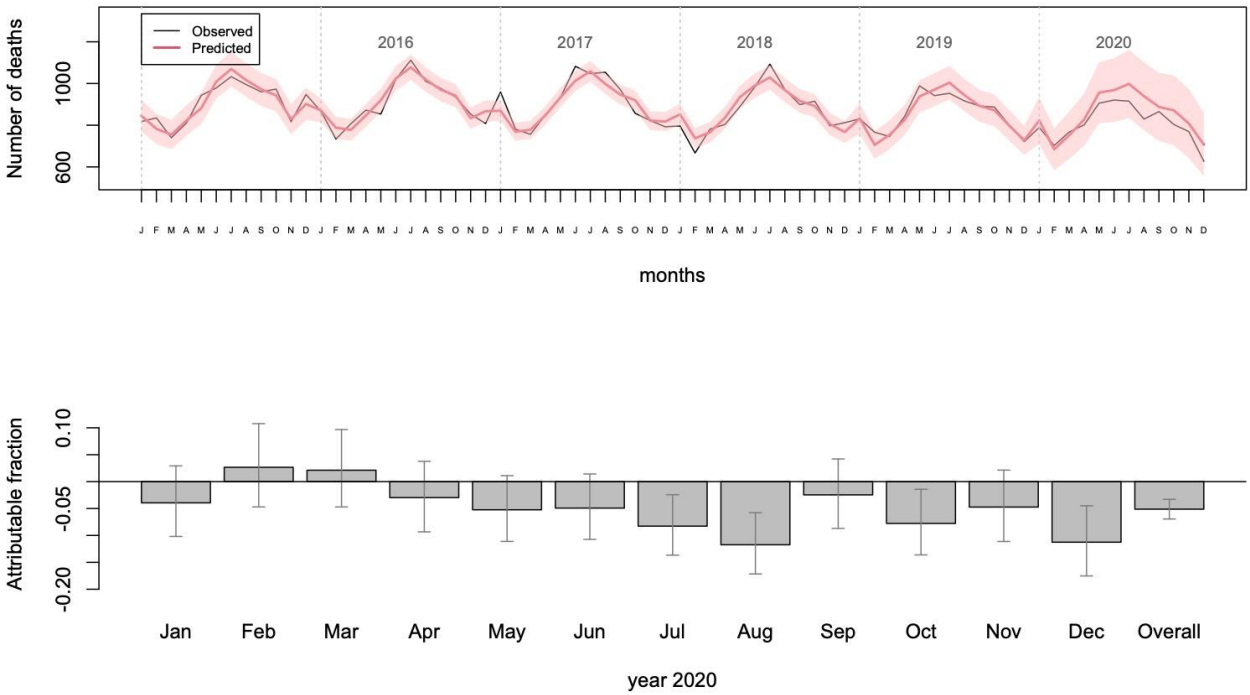


Figure S.3.a .Observed and predicted numbers of deaths from strokes between 2015 and 2020, and monthly attributable fraction for 2020. Chile



The selected model after the backward procedure was:

number of deaths = B_0intercept + B_1month^2 + B_2month^3 + B_3Feb + B_4Mar + B_5Apr + B_6May + B_7Jun + B_8Jul + B_9Aug + B_{10}Sep + B_{11}Oct + B_{12}Nov + B_{13}Dic + B_{14}year + B_{15}Feb:year + B_{17}Mar:year + B_{17}Apr:year + B_{18}May:year + B_{19}Jun:year + B_{20}Jul:year + B_{21}Aug:year + B_{22}Sep:year + B_{23}Oct:year + B_{24}Nov:year + B_{25}Dic:year

Figure S.3.b. Observed and predicted numbers of deaths from strokes between 2015 and 2020, without the seasonal component. Chile

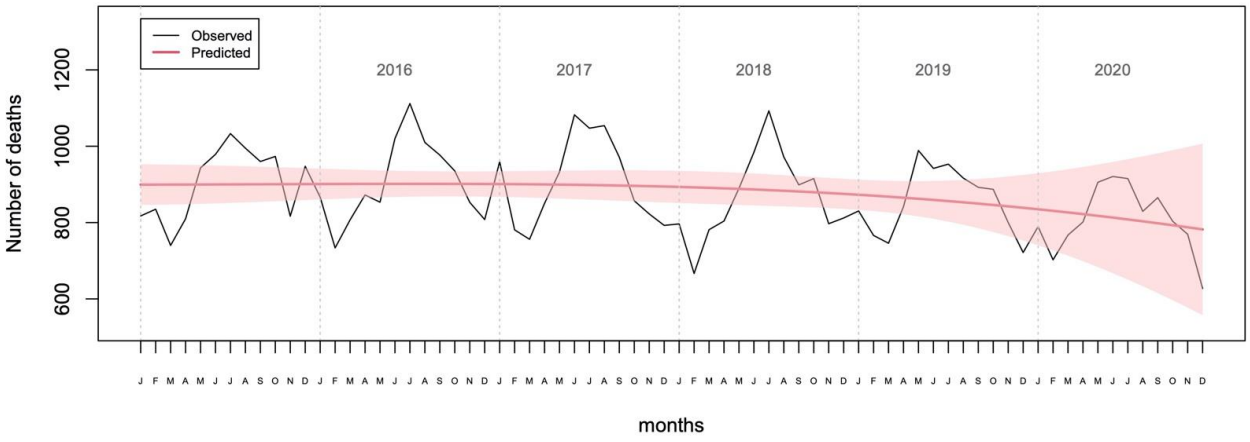
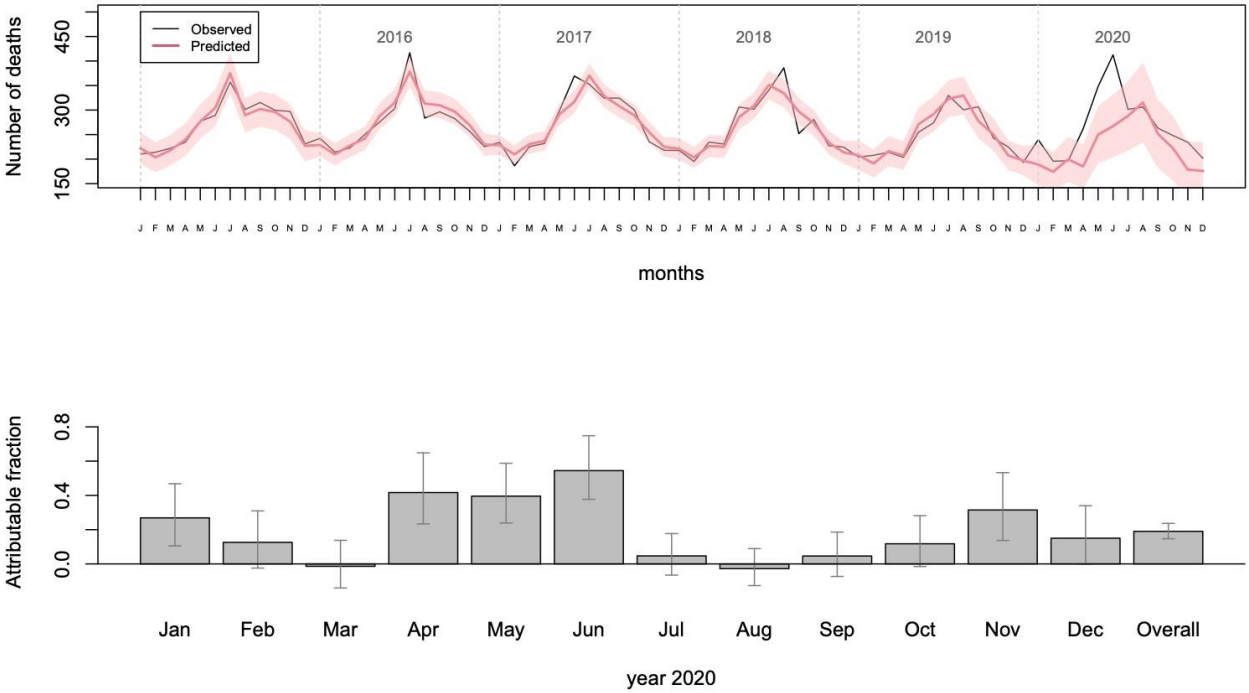


Figure S.4.a. Observed and predicted numbers of deaths from hypertensive heart diseases between 2015 and 2020, and monthly attributable fraction for 2020. Chile



The selected model after the backward procedure was:

number of deaths = B_0intercept + B_1month^2 + B_2month^3 + B_3Feb + B_4Mar + B_5Apr + B_6May + B_7Jun + B_8Jul + B_9Aug + B_{10}Sep + B_{11}Oct + B_{12}Nov + B_{13}Dic + B_{14}year + B_{15}Feb:year + B_{17}Mar:year + B_{17}Apr:year + B_{18}May:year + B_{19}Jun:year + B_{20}Jul:year + B_{21}Aug:year + B_{22}Sep:year + B_{23}Oct:year + B_{24}Nov:year + B_{25}Dic:year

Figure S.4.b. Observed and predicted numbers of deaths from hypertensive heart diseases between 2015 and 2020, without the seasonal component. Chile

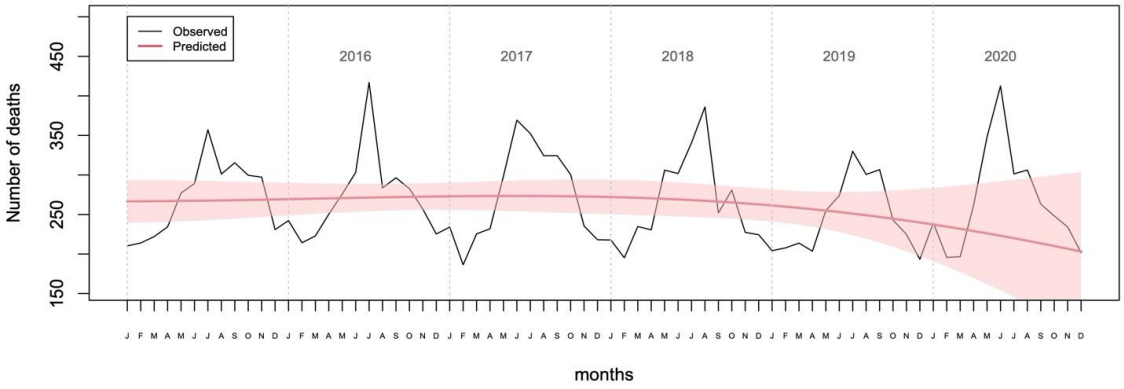
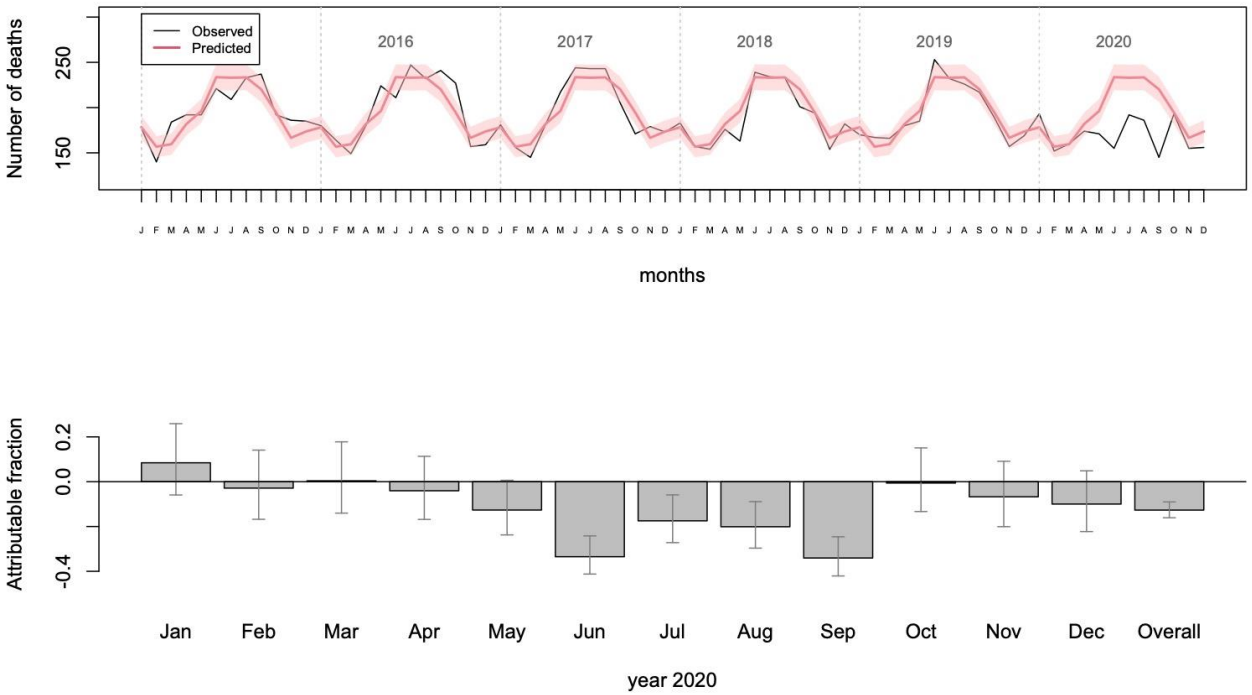


Figure S.5.a. Observed and predicted numbers of deaths from miscellaneous cardiovascular diseases between 2015 and 2020, and monthly attributable fraction for 2020.Chile



The selected model after the backward procedure was:

number of deaths = B_0*intercept* + B_1*Feb* + B_2*Mar* + B_3*Apr* + B_4*May* + B_5*Jun* + B_6*Jul* + B_7*Aug* + B_8*Sep* + B_9*Oct* + B_{10}*Nov* + B_{11}*Dic*

Figure S.6.b. Observed and predicted numbers of deaths from miscellaneous cardiovascular diseases between 2015 and 2020, without the seasonal component. Chile

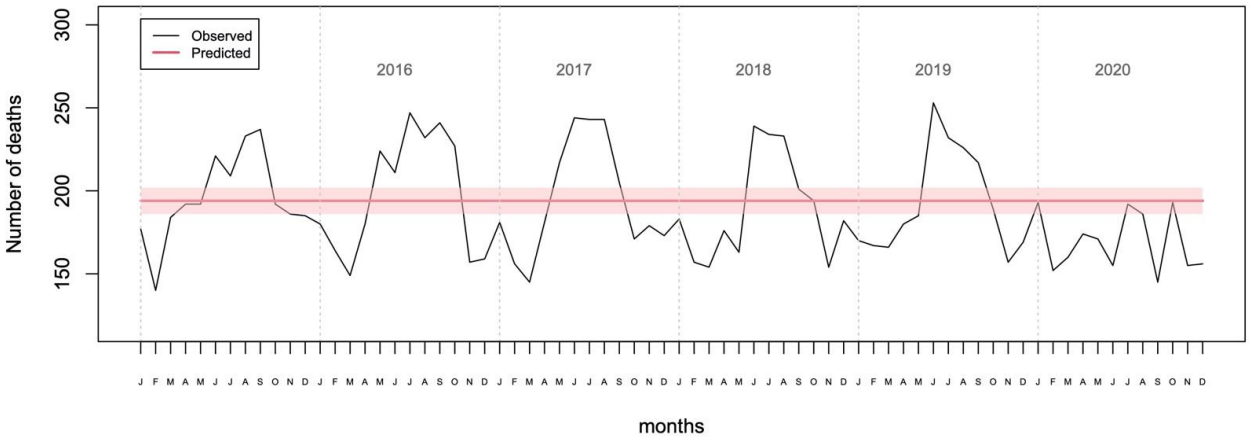
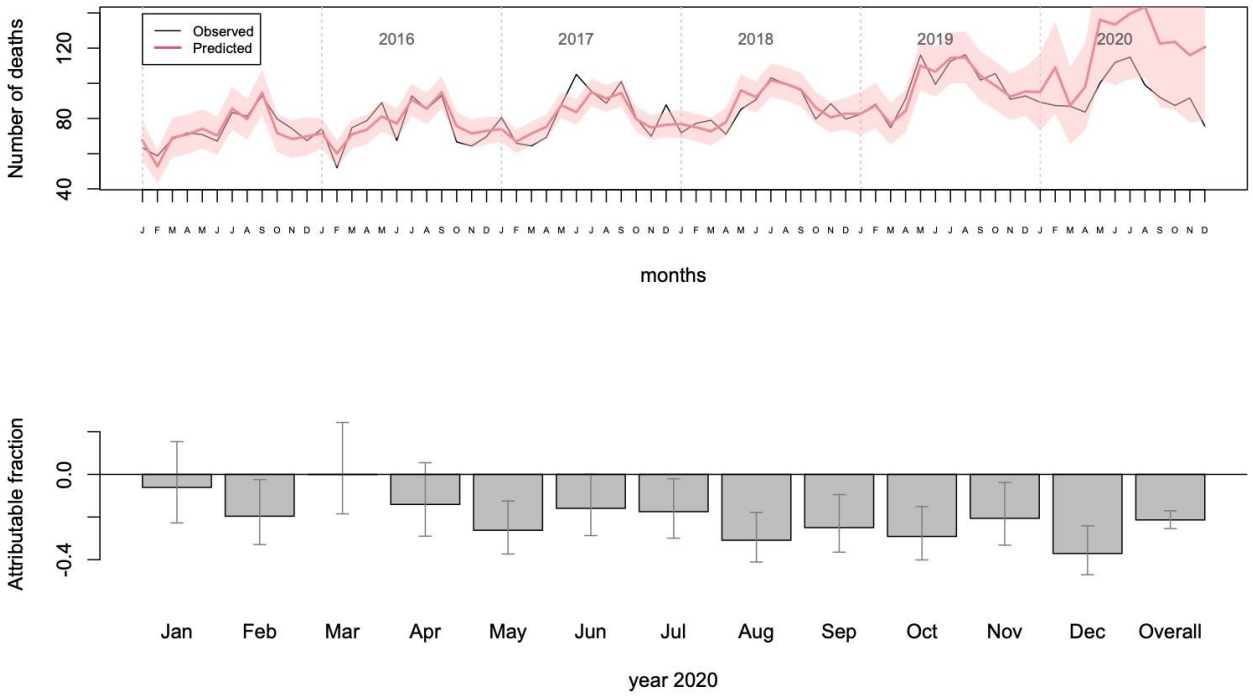


Figure S.6.a. Observed and predicted numbers of deaths from other cardiovascular diseases between 2015 and 2020, and monthly attributable fraction for 2020. Chile



The selected model after the backward procedure was:

number of deaths = B_0intercept + B_1month^2 + B_2month^3 + B_3Feb + B_4Mar + B_5Apr + B_6May + B_7Jun + B_8Jul + B_9Aug + B_{10}Sep + B_{11}Oct + B_{12}Nov + B_{13}Dic + B_{14}year + B_{15}Feb:year + B_{17}Mar:year + B_{17}Apr:year + B_{18}May:year + B_{19}Jun:year + B_{20}Jul:year + B_{21}Aug:year + B_{22}Sep:year + B_{23}Oct:year + B_{24}Nov:year + B_{25}Dic:year

Figure S.6.b. Observed and predicted numbers of deaths from other cardiovascular diseases between 2015 and 2020, without the seasonal component. Chile

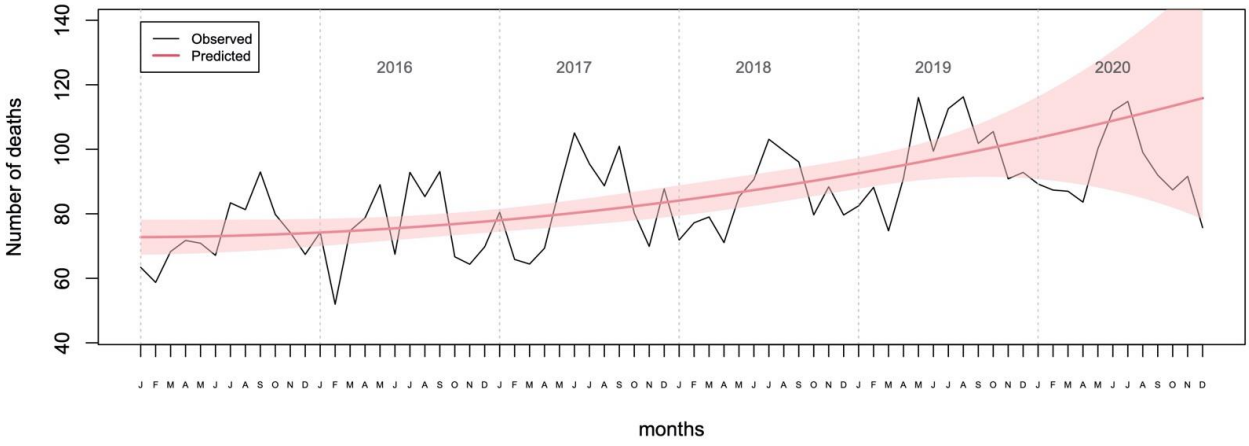


Figure S.7. Monthly deaths by COVID-19 during 2020 in Chile

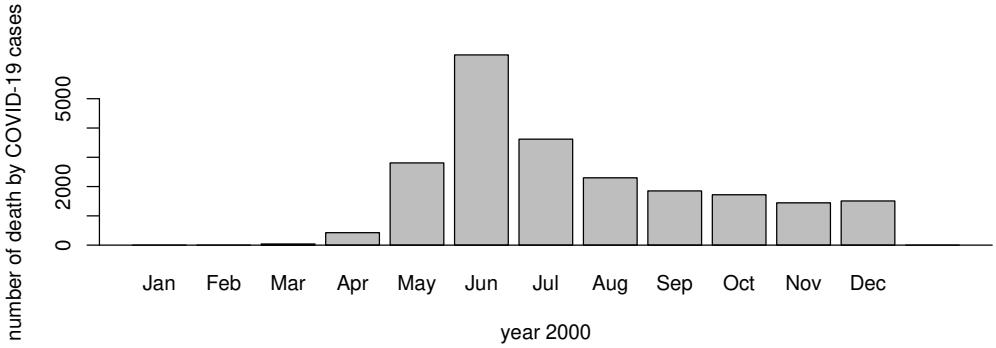


Table S.1. Distribution of deaths by cardiovascular diseases observed in period 2015-2019 and 2020, according to sex, age group, and types of cardiovascular disease, **without redistribution of garbage codes (sensitivity analysis 2)**.

	n= 82,211	N= 15,324
	2015-2019	**2020**
Female (%)	45.6	45.2
Age groups (%)		
<40	1.6	1.7
40-59	14.0	13.9
60-69	17.2	17.2
70-79	24.4	24.0
80-89	28.8	27.7
>89	13.9	15.4
Types of cardiovascular diseases (%)		
Ischemic Heart Diseases	49.8	49.7
Strokes	19.2	19.8
Hypertensive Heart Diseases	14.2	14.3
Miscellaneous Cardiovascular Diseases	14.2	13.3
Other Cardiovascular Diseases	2.7	2.9

Table S.2. Deaths in excess (attributional fraction) estimated for 2020 by cardiovascular diseases, according to gender, age group, and type of cardiovascular disease, following sensitivity analysis 1 (Using the same regression model for all estimates, without allowing cubic terms neither interaction terms) and 2 (without redistribution of garbage codes).

	Using the same regression model for all estimates, without allowing cubic terms neither interaction terms (sensitivity analysis 1)		Without redistribution of garbage codes (sensitivity analysis 2)	
	Median (%)	**UI [2.5% - 97.5%]**	**Median (%)**	**UI [2.5% - 97.5%]**
Overall	-0.2	[-1.3 to 1.0]	-6.8	[-8.2 to -5.4]
Gender				
Men	-3.7	[-5.2 to -2.1]	-11.9	[-13.6 to -10.1]
Women	3.7	[1.9 to 5.4]	0.3	[-2.0 to 2.7]
Age group				
40-59	-5.2	[-8.6 to -1.8]	-7.9	[-11.5 to -4.1]
60-69	-9.9	[-12.5 to -7.1]	-24.5	[-27.0 to -21.9]
70-79	-2.9	[-5.2 to -0.6]	-8.5	[-11.3 to -5.6]
80-89	4.5	[2.4 to 6.8]	9.7	[6.2 to 13.2]
>89	7.7	[4.9 to 10.6]	-11.2	[-14.5 to -7.7]
Cardiovascular disease				
Ischaemic Heath Disease	-2.3	[-3.9 to -0.6]	-8.9	[-10.9 to -7.0]
Stroke	0.2	[-1.7 to 2.2]	-14.1	[-16.8 to -11.2]
Hypertensive Hearth Disease	19.3	[14.8 to 23.9]	22.4	[16.9 to 28.3]
Miscellaneous	-9.2	[-12.9 to -5.4]	-12.7	[-16.1 to -9.0]
Other Cardiovascular Diseases	-13.7	[-18.3 to -8.8]	-21.9	[-27.9 to -15.1]

UI: uncertainty intervals (quantiles 2.5 – 97.5)

Table S.3. Deaths in excess (attributional fraction) estimated for 2020 by type of cardiovascular diseases, according to sex, age group, and sex-age groups.

	Ischemic Heart Disease		Stroke		Hypertensive Heart Disease		Miscellaneous		Other CVDs	
Sex	Median (%)	UI (%) [2.5% - 97.5%]	Median (%)	UI (%) [2.5% - 97.5%]	Median (%)	UI (%) [2.5% - 97.5%]	Median (%)	UI (%) [2.5% - 97.5%]	Median (%)	UI (%) [2.5% - 97.5%]
Men	-9.5	[-11.5 to -7.4]	-16.5	[-18.6 to -14.3]	11.1	[5.0 to 17.6]	-12.3	[-17.1 to -7.1]	-27.4	[-32.3 to -21.8]
Women	4.3	[1.6 to 7.2]	7.1	[4.2 to 10.3]	25.2	[19.1 to 31.7]	-6.3	[-11.6 to -0.4]	-15.7	[-21.6 to -9.0]
Age group										
40-59	-6.6	[-10.8 to -1.9]	3.4	[-3.5 to 10.9]	43.2	[21.9 to 70.5]	30.7	[12.2 to 53.7]	-45.7	[-51.3 to -39.1]
60-69	-22.6	[-25.5 to -19.5]	-22.9	[-26.7 to -18.8]	-6.9	[-16.1 to 3.7]	-27.5	[-34 to -20.2]	7	[-6.9 to 24.5]
70-79	-15.1	[-17.9 to -12.1]	-17.2	[-20.2 to -14]	-8.9	[-15.4 to -1.8]	-18.2	[-24.5 to -11.1]	-30.5	[-37.3 to -22.6]
80-89	23.7	[19.2 to 28.5]	5.8	[2.2 to 9.5]	27.2	[19.0 to 36.0]	-14.9	[-20.8 to -8.6]	-34.4	[-40.1 to -28.1]
>89	-2.3	[-6.1 to 1.7]	0.4	[-3.8 to 4.9]	36.1	[26.3 to 46.7]	-32.7	[-38.2 to -26.8]	26.9	[7.5 to 50.6]
Age group, Male										
40-59	-10.9	[-15.6 to -5.9]	10.3	[0.6 to 21.1]	88.5	[50.1 to 142.6]	63.6	[34.0 to 102.8]	-55.1	[-61 to -48]
60-69	-29.3	[-32.3 to -26.0]	-36.8	[-40.4 to -32.9]	13	[-2.7 to 31.9]	-7.3	[-18.7 to 6.4]	54.4	[21.8 to 101.1]
70-79	-15.8	[-19.3 to -11.9]	-26.1	[-29.4 to -22.5]	-13.9	[-22.3 to -4.2]	-16.2	[-24.8 to -6.2]	-31.9	[-40.4 to -21.9]
80-89	25.6	[18.9 to 32.7]	-10.5	[-14.7 to -6.2]	5	[-4.2 to 15.5]	-13.4	[-22.4 to -3.1]	-60.9	[-64.9 to -56.3]
>89	-17.4	[-22.6 to -11.8]	-4.3	[-11.1 to 3.2]	35.2	[17.6 to 56.8]	-19.4	[-31.7 to -3.6]	63.0	[20.3 to 130.0]
Age group, Female										
40-59	9.1	[-1.5 to 21.4]	-6.6	[-15.7 to 4.1]	-19.3	[-34.4 to 0.1]	-21.2	[-36.2 to -1.2]	-33.6	[-44.5 to -19.8]
60-69	-3.6	[-10.8 to 4.8]	7.7	[-1.9 to 18.8]	-33.1	[-41.7 to -22.4]	-10.0	[-24.2 to 8.0]	-27.0	[-38.4 to -12.5]
70-79	-13.9	[-18.6 to -8.8]	-3.5	[-9.3 to 3.0]	-3.6	[-13.4 to 7.7]	5.6	[-7.8 to 21.8]	-27.7	[-38.2 to -14.5]
80-89	22.2	[16.1 to 28.8]	21.5	[15.5 to 27.8]	44.1	[31.8 to 57.6]	-16	[-23.3 to -7.9]	-6.6	[-18.5 to 8.6]
>89	4.9	[-0.2 to 10.6]	2.6	[-2.7 to 8.4]	36.7	[25.4 to 49.3]	2.6	[-9.2 to 16.8]	10.4	[-8.5 to 35.3]

UI: uncertainty intervals (quantiles 2.5 – 97.5)
Note: All disease categories include fracti