Supplemental material

BMJ Publishing Group Limited (BMJ) disclaims all liability and responsibility arising from any reliance placed on this supplemental material which has been supplied by the author(s)
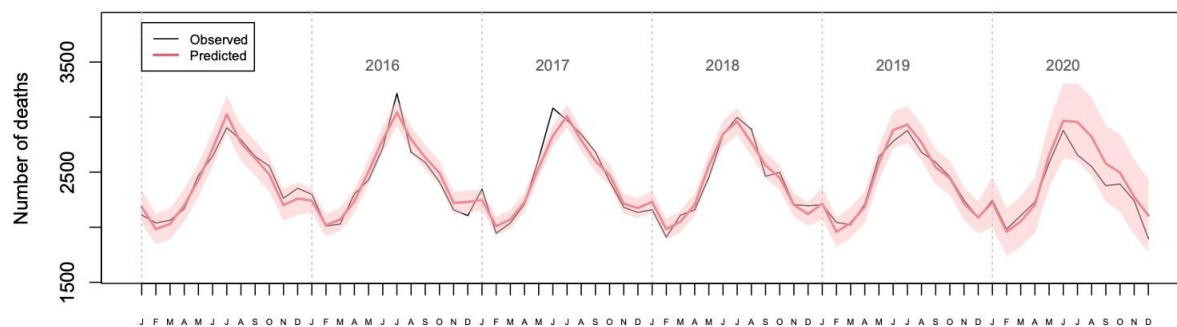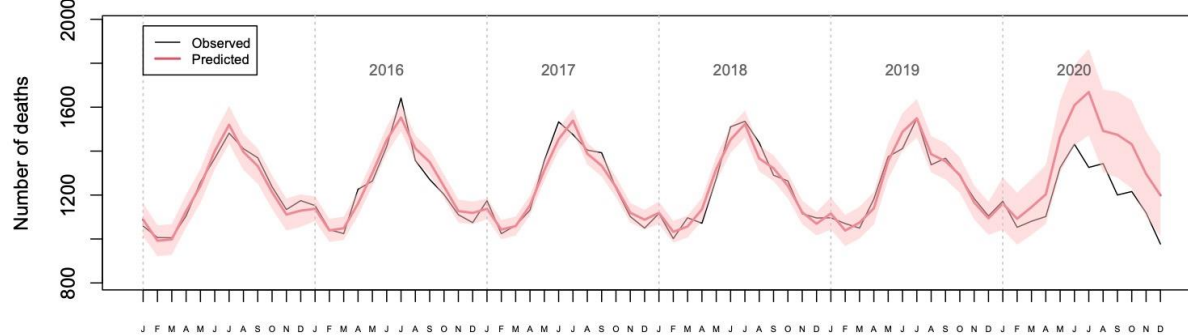
Heart

Supplementary material

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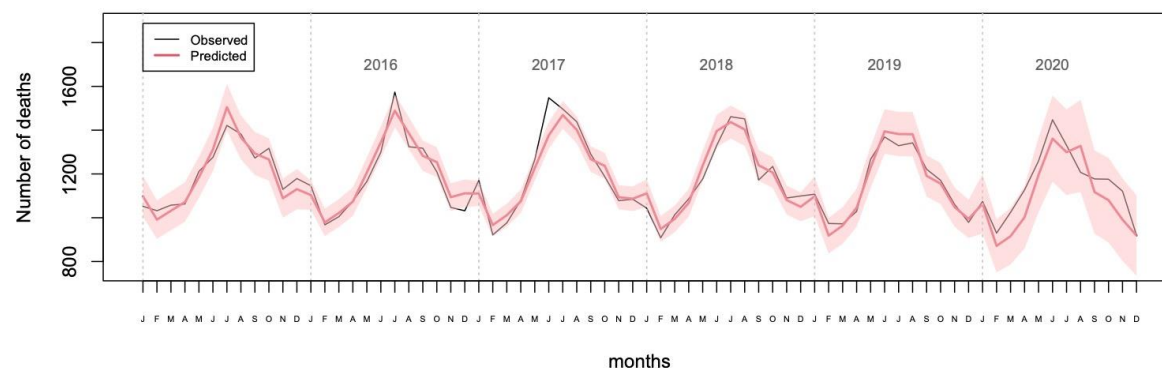
Panel A. Both sexes
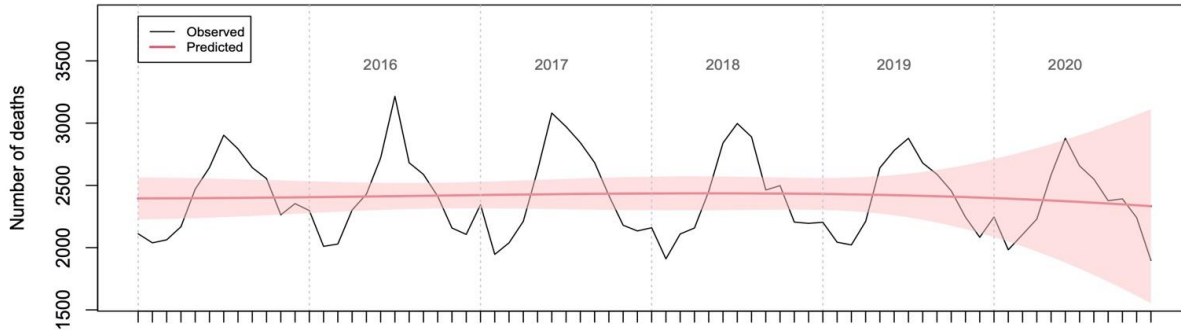

Panel B. Male

Panel C. Female

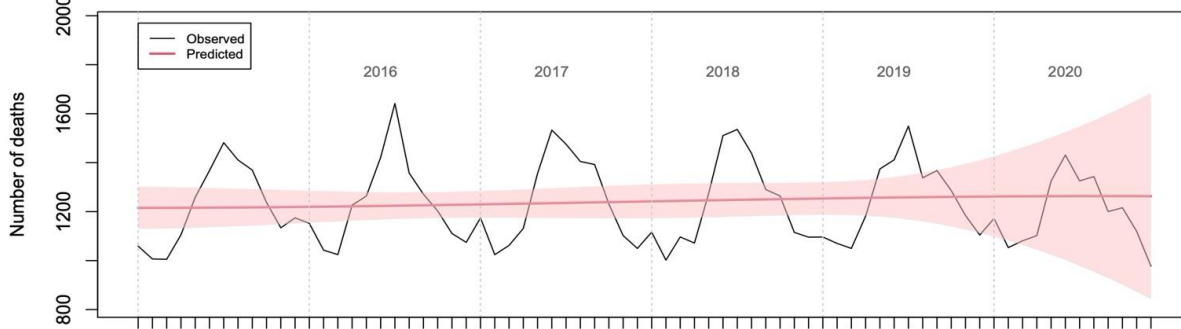The selected model after the backward procedure for both sexes, men and female was the same:

$number\ of\ deaths = B_0 intercept + B_1 month^2 + B_2 month^3 + B_3 Feb + B_4 Mar + B_5 Apr + B_6 May + B_7 Jun + B_8 Jul + B_9 Aug + B_{10} Sep + B_{11} Oct + B_{12} Nov + B_{13} Dic + B_{14} year + B_{15} Feb:year + B_{17} Mar:year + B_{17} Apr:year + B_{18} May:year + B_{19} Jun:year + B_{20} Jul:year + B_{21} Aug:year + B_{22} Sep:year + B_{23} Oct:year + B_{24} Nov:year + B_{25} Dic:year$

Supplemental material

BMJ Publishing Group Limited (BMJ) disclaims all liability and responsibility arising from any reliance placed on this supplemental material which has been supplied by the author(s)

Heart

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

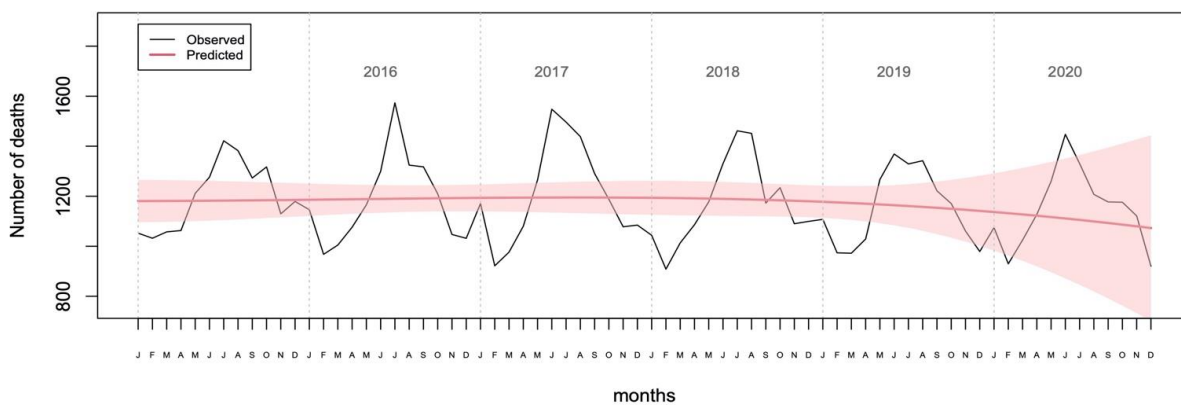## Panel A. Both sexes

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 = $B_0 intercept + B_1 month^2 + B_2 month^3$

Supplemental material

BMJ Publishing Group Limited (BMJ) disclaims all liability and responsibility arising from any reliance placed on this supplemental material which has been supplied by the author(s)
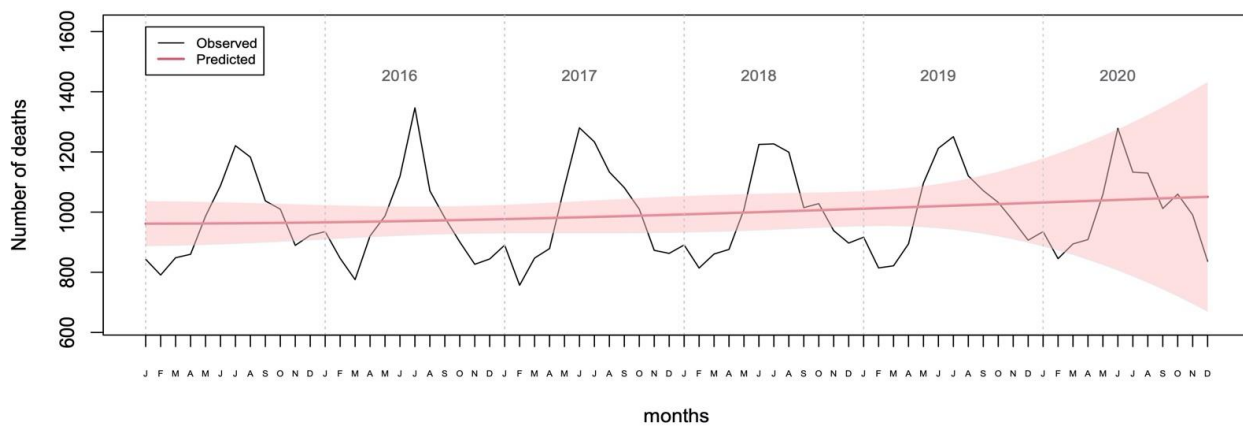
Heart

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
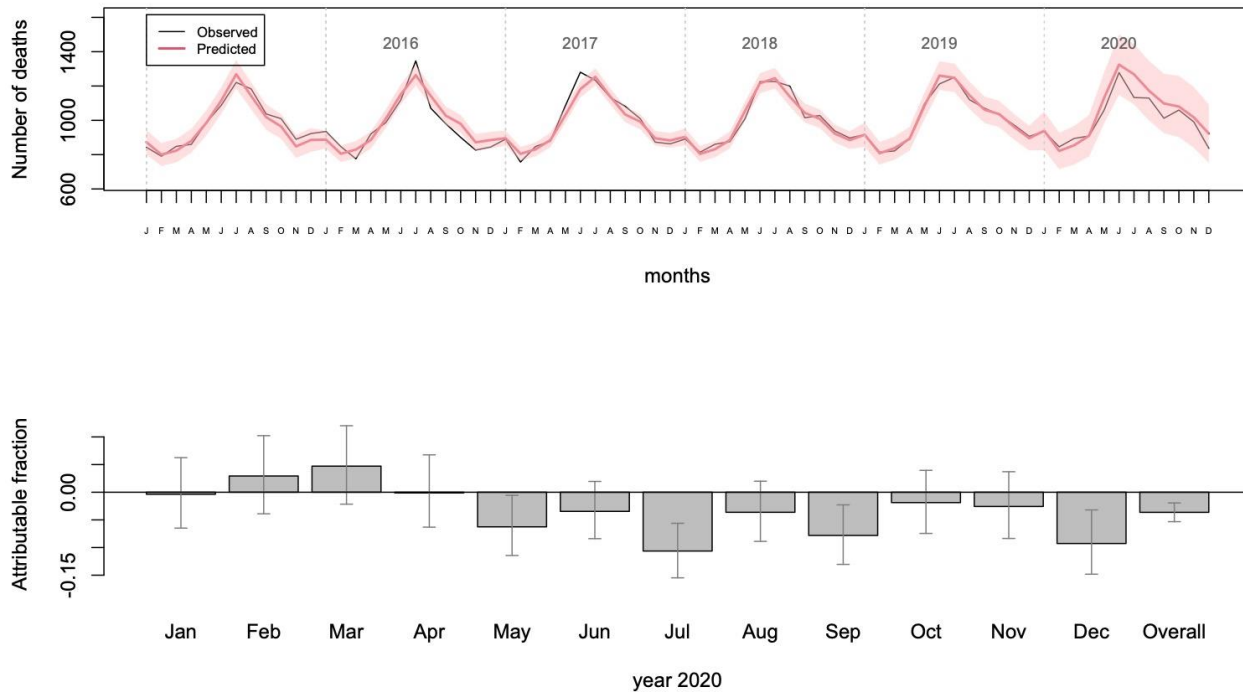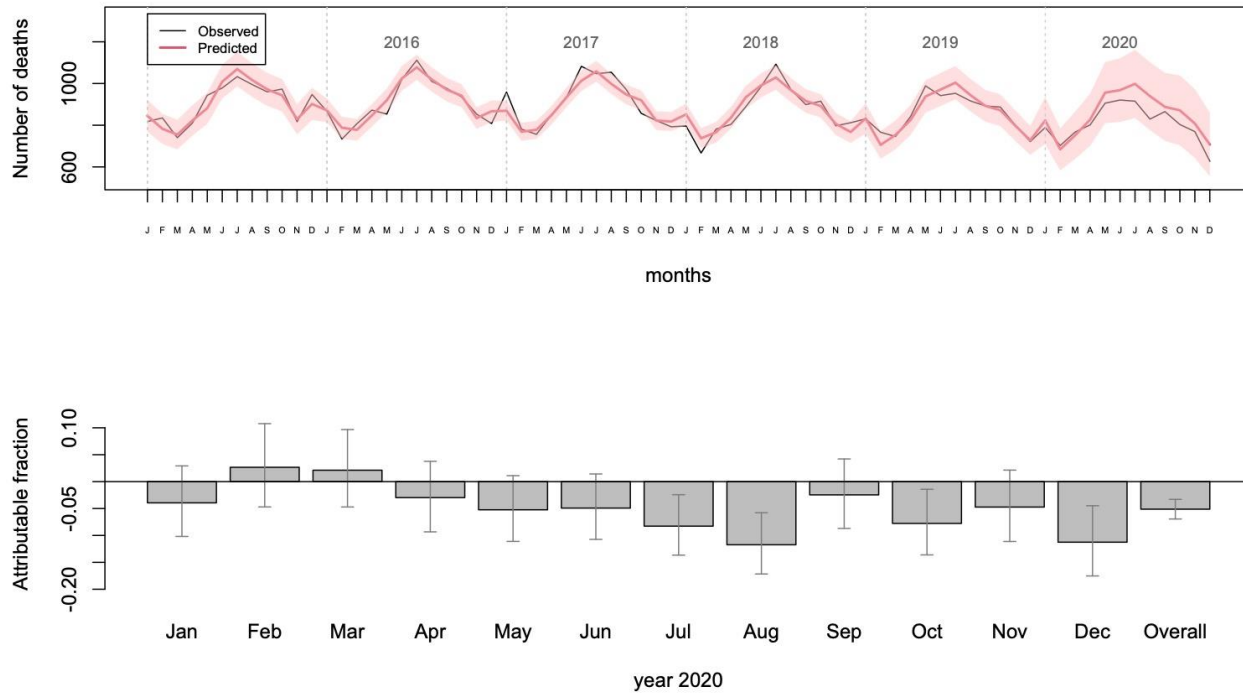

The selected model after the backward procedure was:

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:

$number\ of\ deaths = B_0 intercept + B_1 month^2 + B_2 month^3 + B_3 Feb + B_4 Mar + B_5 Apr + B_6 May + B_7 Jun + B_8 Jul + B_9 Aug + B_{10} Sep + B_{11} Oct + B_{12} Nov + B_{13} Dic + B_{14} year + B_{15} Feb:year + B_{17} Mar:year + B_{17} Apr:year + B_{18} May:year + B_{19} Jun:year + B_{20} Jul:year + B_{21} Aug:year + B_{22} Sep:year + B_{23} Oct:year + B_{24} Nov:year + B_{25} Dic:year$

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

Supplemental material

BMJ Publishing Group Limited (BMJ) disclaims all liability and responsibility arising from any reliance placed on this supplemental material which has been supplied by the author(s)

Heart

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
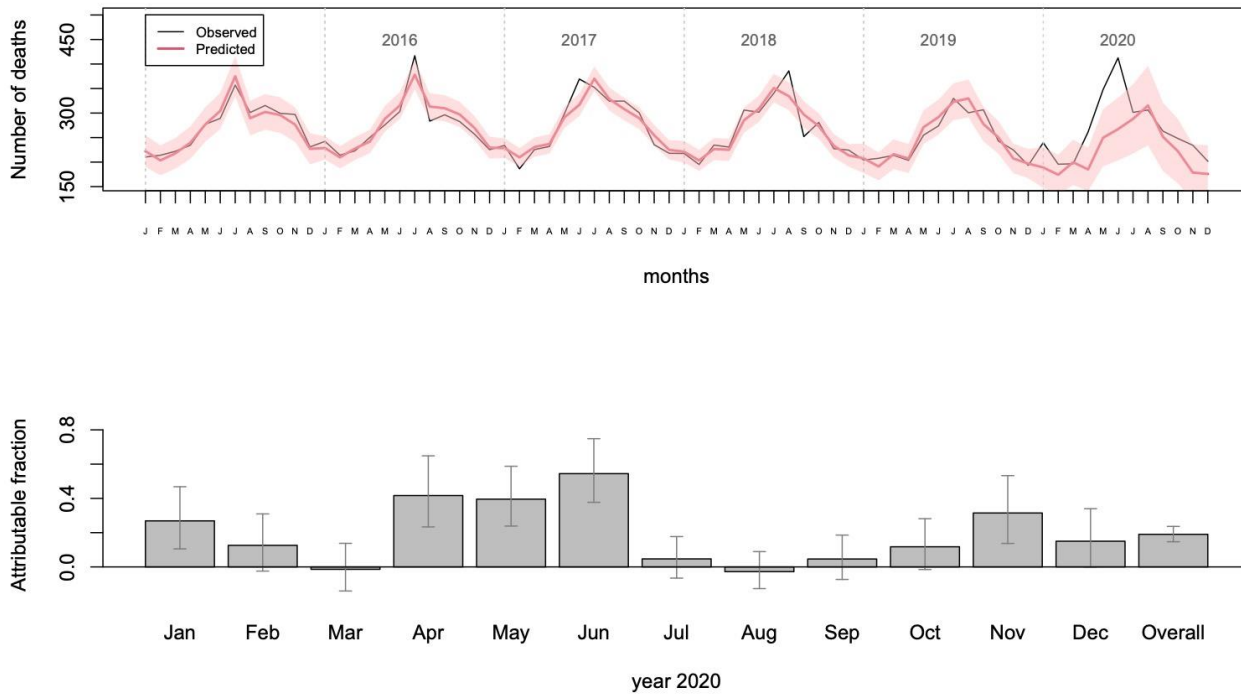
The selected model after the backward procedure was:

$number\ of\ deaths = B_0 intercept + B_1 month^2 + B_2 month^3 + B_3 Feb + B_4 Mar + B_5 Apr + B_6 May + B_7 Jun + B_8 Jul + B_9 Aug + B_{10} Sep + B_{11} Oct + B_{12} Nov + B_{13} Dic + B_{14} year + B_{15} Feb:year + B_{17} Mar:year + B_{17} Apr:year + B_{18} May:year + B_{19} Jun:year + B_{20} Jul:year + B_{21} Aug:year + B_{22} Sep:year + B_{23} Oct:year + B_{24} Nov:year + B_{25} Dic:year$

Figure S.4.b. Observed and predicted numbers of deaths from hypertensive heart diseases between 2015 and 2020, without the seasonal component. Chile
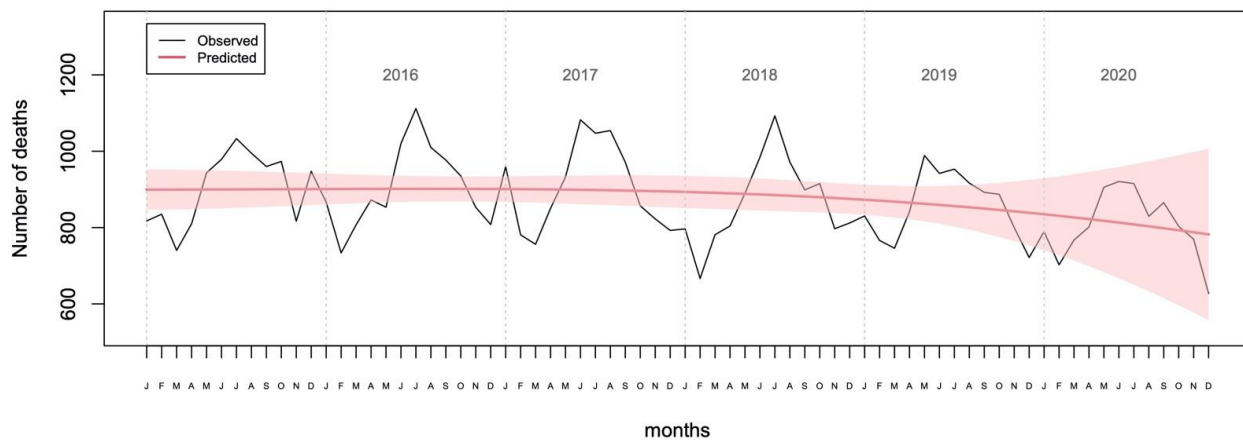
Figure S.5.a. Observed and predicted numbers of deaths from miscellaneous cardiovascular diseases between 2015 and 2020, and monthly attributable fraction for 2020.Chile

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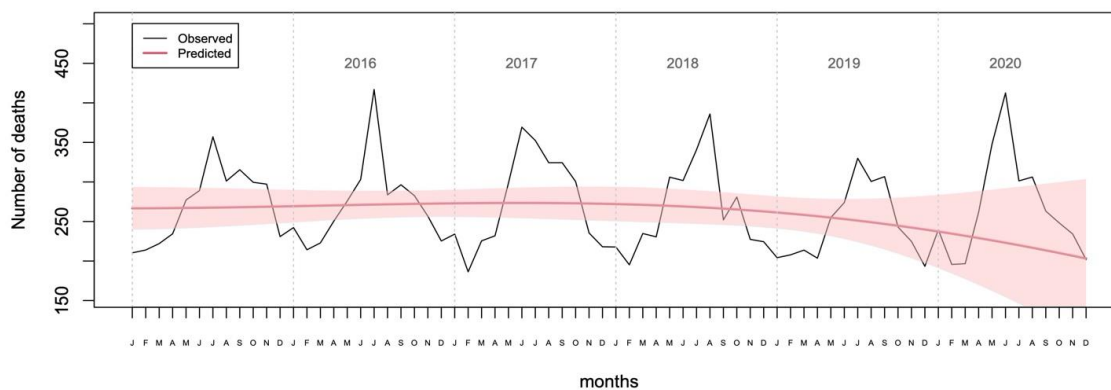
Figure S.6.a. Observed and predicted numbers of deaths from other cardiovascular diseases between 2015 and 2020, and monthly attributable fraction for 2020. Chile
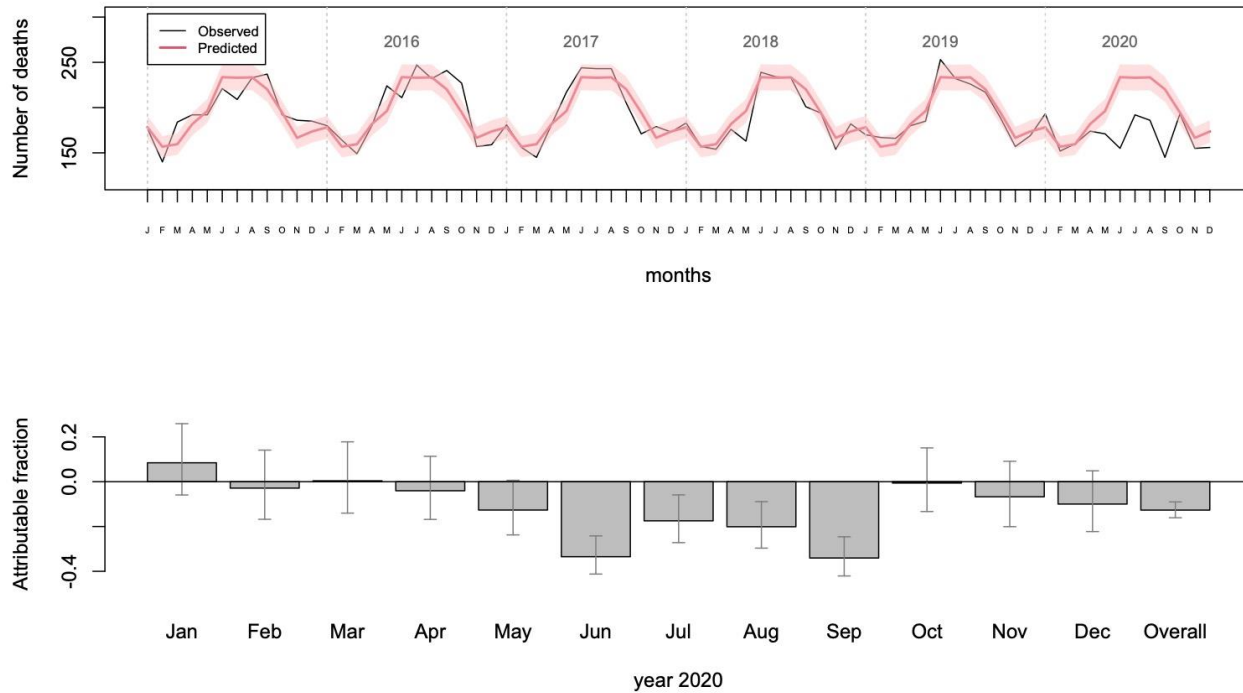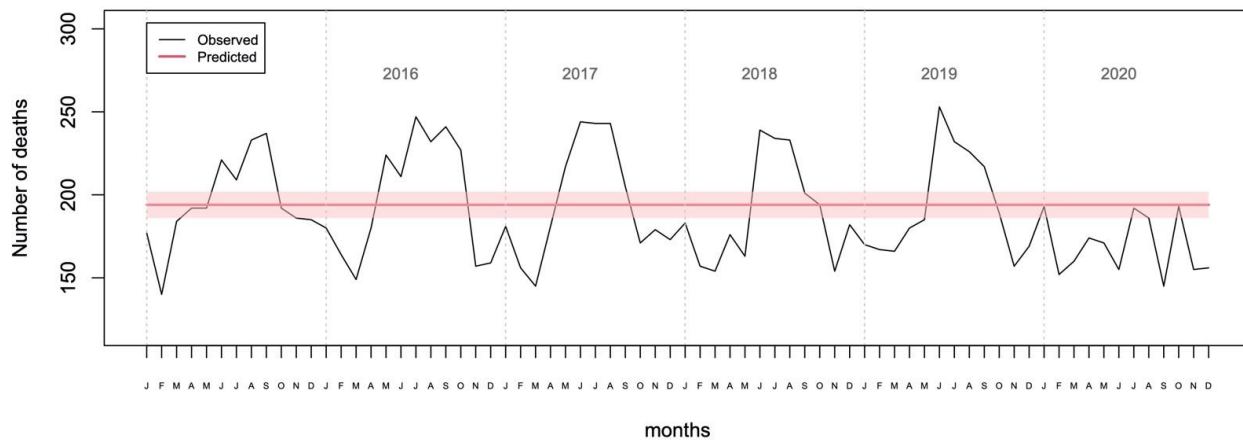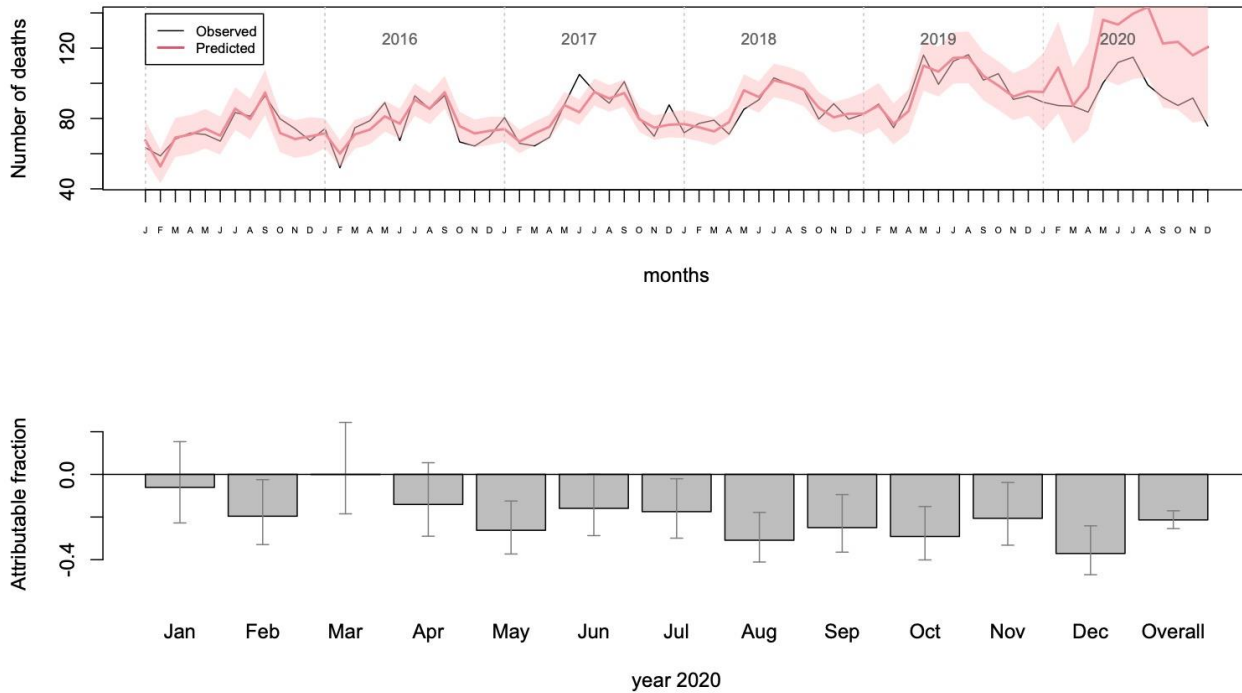

The selected model after the backward procedure was:

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
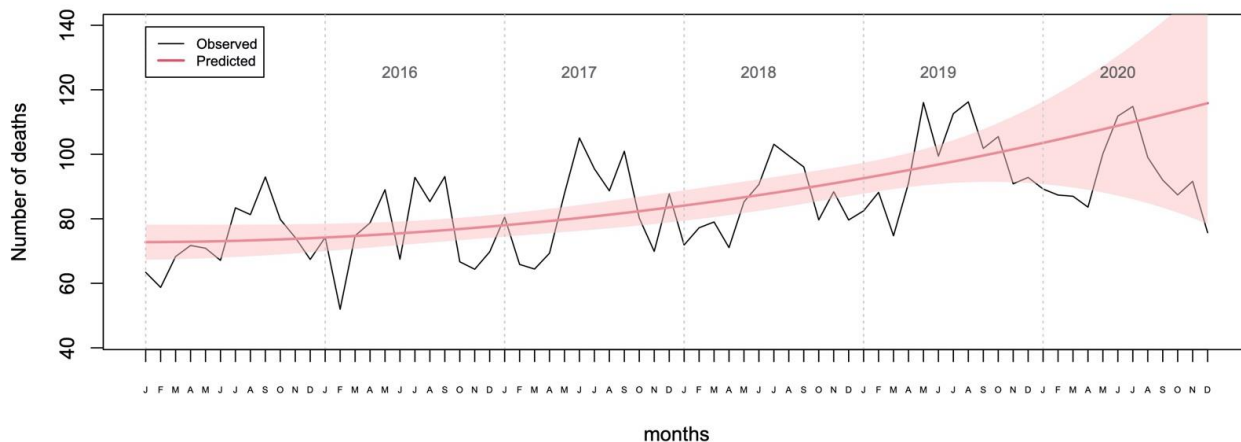
Figure S.7. Monthly deaths by COVID-19 during 2020 in Chile
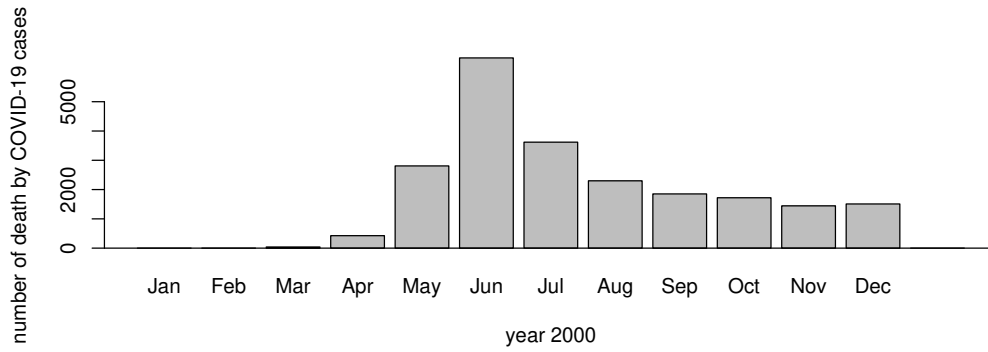
Table S.1. Distribution of deaths by cardiovascular diseases observed in period 2015-2019 and 2020, according to sex, age group, and types of cardiovascular disease, **without redistribution of garbage codes (sensitivity analysis 2)**.

	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

Supplemental material

BMJ Publishing Group Limited (BMJ) disclaims all liability and responsibility arising from any reliance placed on this supplemental material which has been supplied by the author(s)

Heart

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)

Supplemental material

BMJ Publishing Group Limited (BMJ) disclaims all liability and responsibility arising from any reliance placed on this supplemental material which has been supplied by the author(s)

Heart

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