

Trends in mortality from cardiovascular diseases in Chile, 2000–2020

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ABSTRACT

Objective. To analyze trends in mortality caused by cardiovascular diseases (CVD) in Chile during the period 2000–2020.

Methods. Data on age-adjusted mortality rates (AAMR) from CVD per 100 000 population in Chile for 2000–2020 were extracted from the World Health Organization Mortality Database. Joinpoint regression was used to analyze the trends and compute the average annual percent change (AAPC) in Chile. In addition, analyses were conducted by sex and type of CVD.

Results. Between 2000 and 2020, the AAMR from CVD decreased in Chile from 159.5 to 94.6 per 100 000 population, with a statistically significant decrease in the AAPC of 2.6% (95% CI [–2.8, –2.4]). No joinpoints were identified. The AAMR from CVD decreased annually by 2.6% (95% CI [–2.8, –2.4]) and 2.8% (95% CI [–3.5, –2.6]) in men and women, respectively. The AAMR from ischemic heart disease reduced annually by 3.6% (95% CI [–4.6, –2.7]) with two joinpoints in 2011 and 2015. In the case of stroke, the mortality rate decreased annually by 3.7% (95% CI [–4.5, –3.0]), with two joinpoints in 2008 and 2011.

Conclusions. Cardiovascular disease mortality rates have decreased significantly in Chile, in both sexes, especially in women. This decrease could be explained mainly by a significant reduction in the case fatality in recent decades. These results could be a reference for developing primary prevention and acute management of CVD policies focused on populations with higher mortality.

Keywords

Cardiovascular diseases; myocardial ischemia; stroke; mortality; regression analysis; Chile.

Cardiovascular diseases (CVD) are a major public health concern and the leading cause of mortality globally (1). Over three-quarters of CVD deaths occur in low- and middle-income countries (2). In the Region of the Americas, mortality due to CVD has shown a decreasing trend during 2000–2010. Still, it remains the primary cause of death, mainly due to social and economic changes, lifestyle modifications, and increased life expectancy (3). Also, in 2019, ischemic heart disease (IHD) and stroke were the first and the second leading cause of death, respectively (1, 4).

Few studies have analyzed the trends of CVD mortality in Latin America. Evidence shows that countries are at different

stages of the cardiovascular disease epidemic; while some countries reduce mortality, others maintain the rise (5). In this sense, it is essential to analyze mortality trends to monitor community health status, evaluate health programs, and define actions to improve public health policies to prevent or reduce mortality between countries.

Chile is one of the countries in Latin America with the longest life expectancy at birth (79.5 years in 2022) and a low CVD age-adjusted mortality rate (AAMR) of 95.5 per 100 000 population, within the first quintile of the Americas in 2019 (6, 7). The implementation of health programs and public policies, as well as the health and living situations, may be responsible for these

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outcomes. Related to social determinants of health, in 2012, Chile entered the group of high-income countries according to the World Bank classification (8). The Gini coefficient decreased from 54.9 in 1996 to 44.9 in 2020, confirming a reduction in income inequality (7). Additionally, noncommunicable diseases accounted for 82% of the disease burden in 2013 (9) and CVD was the primary cause of death in 2020, being responsible for 23% of the casualties, mainly due to stroke and ischemic heart disease (10).

Chile has implemented several public policies in recent decades to reduce the burden of CVD. One of the most important was the inclusion of acute myocardial infarction, ischemic stroke, and subarachnoid hemorrhage in the Explicit Health Guarantees Program in 2005 (11). Likewise, the National Health Strategy of the Republic of Chile 2021–2030 focused on increasing the adequate coverage of comprehensive treatment for CVD and access to rehabilitation services (12). However, to date there has been no evidence of the impact of the implementation of health programs and public policies on CVD mortality trends in the last decade. Thus, this study aimed to analyze trends in mortality caused by CVD in Chile during 2000–2020 and relate the results based on the implementation of public policies.

MATERIALS AND METHODS

Study design

A secondary data analysis was performed. Age-adjusted mortality rates (AAMR) from cardiovascular diseases data (ICD-10 codes: I00–I99), for men and women in Chile in the period 2000–2020, were extracted from the World Health Organization (WHO) Mortality Database (10). The database was updated on 27 February 2023. On the data quality for Chile, the Database reports a percentage of ill-defined or nonspecific causes to total deaths: 10.8%; completeness: 100.0%; and usability: 89.2%. Usability >80% is considered high.

Data analysis

Joinpoint regression software (version 4.9.0.0; Surveillance Research Program, National Cancer Institute, Bethesda, MD, United States of America) was used to analyze significant changes in mortality trends. This analysis identified inflection points (called joinpoints) for which the linear slope of the trend significantly changed. First, the number and location of significant joinpoints for each CVD type were determined using

a log-linear model (13). Next, the estimated annual percent change (APC) and corresponding 95% confidence intervals were computed, to describe the change magnitude for each identified trend. In this model, the AAMR was used as the dependent variable and the year of death as the independent variable with an annual interval type and assuming a constant variance (homoscedasticity). In all analyses, $p < 0.05$ was regarded as statistically significant.

The average annual percent change (AAPC) was also calculated for the overall period in Chile. The AAPC is interpreted as an increasing trend when AAPC 95% CIs are greater than zero; it is a constant trend when AAPC 95% CIs overlap with zero, and a decreasing trend when AAPC 95% CIs are lower than zero (4). Analyses were conducted by sex and by CVD type. The Joinpoint regression analysis has been used extensively in previous research on trends in cardiovascular and cerebrovascular disease (14–16).

Ethical considerations

The datasets used for this study are publicly available and anonymous. Therefore, this study is a secondary data analysis, and no approval by the ethics committee was needed.

RESULTS

Between 2000 and 2020, the number of recorded deaths from CVD in Chile increased steadily from 21 956 (11 230 men and 10 726 women) to 29 019 (14 684 men and 14 335 women) (Table 1). The AAMR from cardiovascular diseases between 2000 and 2020 decreased from 159.5 to 94.6 per 100 000 population (Figure 1, Table 2). The AAMR decreased annually by 2.6% (95% CI [–2.8, –2.4]) without joinpoints (Table 3).

CVD mortality trends for men and women are presented in Table 4 and Table 5, respectively. In men, the AAMR decreased from 201.6 to 119.6 per 100 000 population. The mortality rate reduced annually by 2.6% (95% CI [–2.8, –2.4]) without joinpoints (Table 4). For women, the AAMR decreased from 128.3 to 74.3 per 100 000 population. We recorded a statistically significant decrease of 2.8% (95% CI [–3.0, –2.6]) in the AAPC without joinpoints (Table 5).

Trends in mortality by type of CVD

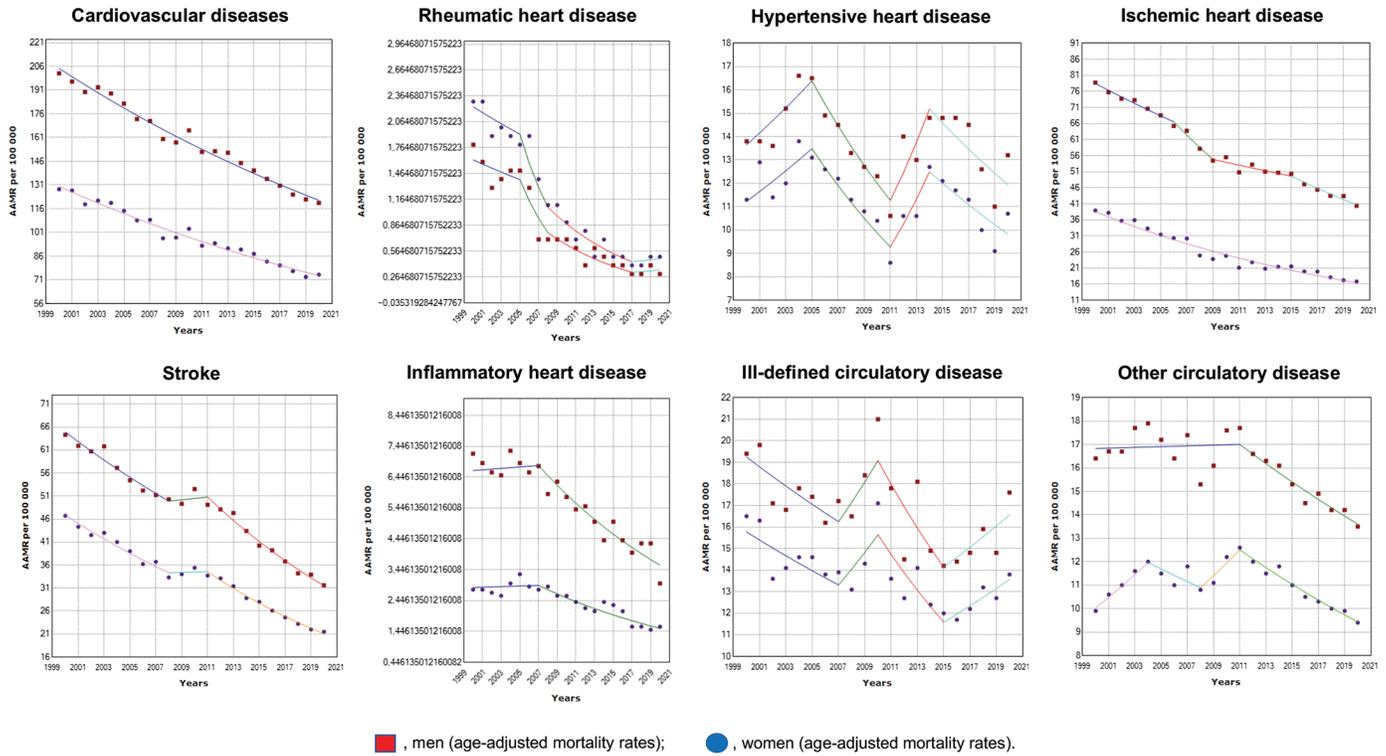
The AAMR for ischemic heart disease decreased from 55.7 to 27.4 per 100 000 population (Table 2). The mortality rate

TABLE 1. Number of deaths from cardiovascular diseases in Chile, 2000–2020

Type of cardiovascular disease	Total		Male		Female	
	2000	2020	2000	2020	2000	2020
Cardiovascular diseases	21 956	29 019	11 230	14 684	10 726	14 335
Rheumatic heart disease	298	119	115	36	183	83
Hypertensive heart disease	1 695	3 865	733	1 647	962	2 218
Ischemic heart disease	7 676	7 959	4 433	4 899	3 243	3 060
Stroke	7 455	7 948	3 573	3 887	3 882	4 061
Inflammatory heart disease	658	597	434	351	224	246
Ill-defined circulatory disease	2 423	5 117	1 012	2 204	2 913	1 411
Other circulatory diseases	1 751	3 414	930	1 660	821	1 754

Source: Prepared by the authors based on the study data.

FIGURE 1. Trends in mortality from cardiovascular diseases in Chile, 2000–2020



Source: Prepared by the authors based on the study data.

reduced annually by 3.6% (95% CI [-4.6, -2.7]) with two joinpoints in 2001 and 2015 (Table 3). The AAMR for IHD in men decreased from 78.7 to 40.4 per 100 000 population. We noted a statistically significant reduction of 3.1% (95% CI [-3.9, -2.2]) in the AAPC with joinpoints in 2005 and 2009. The AAMR for IHD in women decreased from 38.9 to 16.8 per 100 000 population. A statistically significant reduction of 4.2% (95% CI [-4.6, -3.8]) was recorded in the AAPC without joinpoints (Table 5).

The AAMR for stroke decreased from 54.1 to 25.9 per 100 000 population (Table 2). The mortality rate reduced annually by 3.7% (95% CI [-4.5, -3.0]) with two joinpoints: 2008 and 2011 (Table 3). The AAMR for stroke in men decreased from 64.3 to 31.6 per 100 000 population (Table 2). The mortality rate reduced annually by 3.5% (95% CI [-4.5, -2.6]) with two joinpoints: 2008

and 2011 (Table 4). The AAMR for stroke in women decreased from 46.7 to 21.5 per 100 000 population (Table 2). We found a statistically significant decrease of 3.9% (95% CI [-4.7, -3.1]) in the AAPC with two joinpoints: 2008 and 2011 (Table 5).

DISCUSSION

This analysis of trends in mortality from cardiovascular diseases in Chile showed overall downward trends in both sexes between 2000 and 2020, more accentuated in women, with a statistically significant decrease of -2.6% in the AAPC. By sexes, we observed a -2.6% and -2.8% AAPC in men and women, respectively. Similarly, IHD and stroke mortality rates decreased significantly in the period analyzed.

TABLE 2. Age-adjusted mortality rate from cardiovascular diseases in Chile, 2000–2020

Type of cardiovascular disease	Total		Male		Female	
	2000	2020	2000	2020	2000	2020
Cardiovascular diseases	159.5	94.6	201.6	119.6	128.3	74.3
Rheumatic heart disease	2.1	0.4	1.8	0.3	2.3	0.5
Hypertensive heart disease	12.4	11.8	13.8	13.2	11.3	10.7
Ischemic heart disease	55.7	27.4	78.7	40.4	38.9	16.8
Stroke	54.1	25.9	64.3	31.6	46.7	21.5
Inflammatory heart disease	4.7	2.3	7.2	3.0	2.8	1.6
Ill-defined circulatory disease	17.8	15.5	19.4	17.6	16.5	13.8
Other circulatory diseases	12.6	11.2	16.4	13.5	9.9	9.4

Source: Prepared by the authors based on the study data.

TABLE 3. Joinpoint analysis for cardiovascular diseases mortality trends in Chile, 2000–2020

	Total study period		Period 1		Period 2		Period 3	
	AAPC (95% CI)	Years	APC (95% CI)	Years	APC (95% CI)	Years	APC (95% CI)	
Cardiovascular diseases	-2.6* (-2.8, -2.4)	—	—	—	—	—	—	
Rheumatic heart disease	-9.4* (-10.5, -8.3)	—	—	—	—	—	—	
Hypertensive heart disease	-1.4 (-4.2, 1.5)	2000–2011	-1.9* (-3.7, -0.2)	2011–2015	4.5 (-8.5, 19.2)	2015–2020	-4.6 (-10.1, 1.2)	
Ischemic heart disease	-3.6* (-4.6, -2.7)	2000–2011	-4.3* (-4.8, -3.7)	2011–2015	-1.3 (-5.5, 3.2)	2015–2020	-4.2* (-6.0, -2.2)	
Stroke	-3.7* (-4.5, -3.0)	2000–2008	-3.5* (-4.1, -2.9)	2008–2011	0.4 (-4.8, 6.0)	2011–2020	-5.2* (-5.7, -4.8)	
Inflammatory heart disease	-3.0* (-3.8, -2.1)	2000–2007	0.0 (-2.2, 2.3)	2007–2020	-4.5* (-5.4, -3.7)	—	—	
Ill-defined circulatory disease	-1.0* (-1.6, -0.4)	—	—	—	—	—	—	
Other circulatory diseases	-0.6 (-1.7, 0.6)	2000–2003	3.2 (-3.3, 10.0)	2003–2012	0.1 (-1.3, 1.5)	2012–2020	-2.7* (-4.0, -1.3)	

Notes: AAPC, average annual percent change; APC, annual percent change; CI, confidence interval. * $p < 0.05$ for change in trend; * indicates that the AAPC is significantly different from zero at the $\alpha = 0.05$ level.
Source: Prepared by the authors based on the study data.

Mortality depends mainly on the incidence and case fatality. Between 2001 and 2007, the standardized annual incidence rate for acute myocardial infarction (AMI) in Chile was 74.4 per 100 000 population (98.0 for males and 51.0 for women). The total case fatality was 49.5% (45.4% in men and 57.2% in women), with a significant annual reduction of 1.2% in men and 0.81% in women (17). In other words, the incidence of AMI was stable, and the case fatality decreased in the period 2001–2007. In the case of stroke, in a study in Iquique, Tarapacá Region (2005), the age-adjusted incidence of stroke was 140.1 per 100 000 population. The case fatality was 23.3% at 30 days and 33% at 6 months (18). On the other hand, a study conducted in the Ñuble Region (2021) found an age-adjusted incidence of stroke of 163.4 per 100 000 population. The 30-day case fatality was 24.6% and 30% at 6 months (19). Therefore, although the stroke incidence has increased in the recent decades in Chile, the case fatality has decreased in the same period. The reduction in the incidence of hemorrhagic stroke in Chile in recent decades is also remarkable, which could significantly reduce stroke mortality, considering the higher case fatality associated with this subtype of stroke (about 50%). Two Brazilian studies have also reported this reduction in the incidence of hemorrhagic stroke (20, 21). The decrease in the incidence of hemorrhagic stroke could be explained by better control of hypertension and lower alcohol consumption in Chile in the last few decades (19).

Chile has implemented several public policies in recent decades to reduce CVD incidence and case fatality (Figure 2). From 2005,

the main cardiovascular risk factors, hypertension, and diabetes are included in the Explicit Health Guarantees program (GES from the Spanish “Garantías Explícitas en Salud”). This program guarantees patients access, opportunity, and financial protection (11, 22). These initiatives are meant to reduce the incidence of CVD. On the other hand, myocardial infarction, ischemic stroke, and subarachnoid hemorrhage have been part of the GES program since 2005 as Chile’s primary strategy to reduce IHD and stroke fatalities (11, 22). This policy has allowed greater access to diagnosis, reperfusion therapies, hospital admission, and secondary prevention. In addition, the GES program has developed based-evidence clinical practice guidelines. Implementing the GES program has reduced in-hospital mortality of ST-elevation myocardial infarction in Chilean hospitals (23).

The marked reduction in the rheumatic heart disease mortality rate is worth noting, with a decrease in the AAPC of -9.7% between 2000 and 2020; -9.5% and -10% in men and women, respectively. This result could be explained by the dramatic reduction in the incidence of rheumatic fever in Chile: 2.2 cases per 100 000 population in 1978 to 0 cases per 100 000 population in 1998 (24). This trend is related to the epidemiological transition in health problems characterized by a reduction in infectious conditions that paralleled an increase in the incidence of allergies and autoimmune disorders (the so-called hygiene hypothesis) (24).

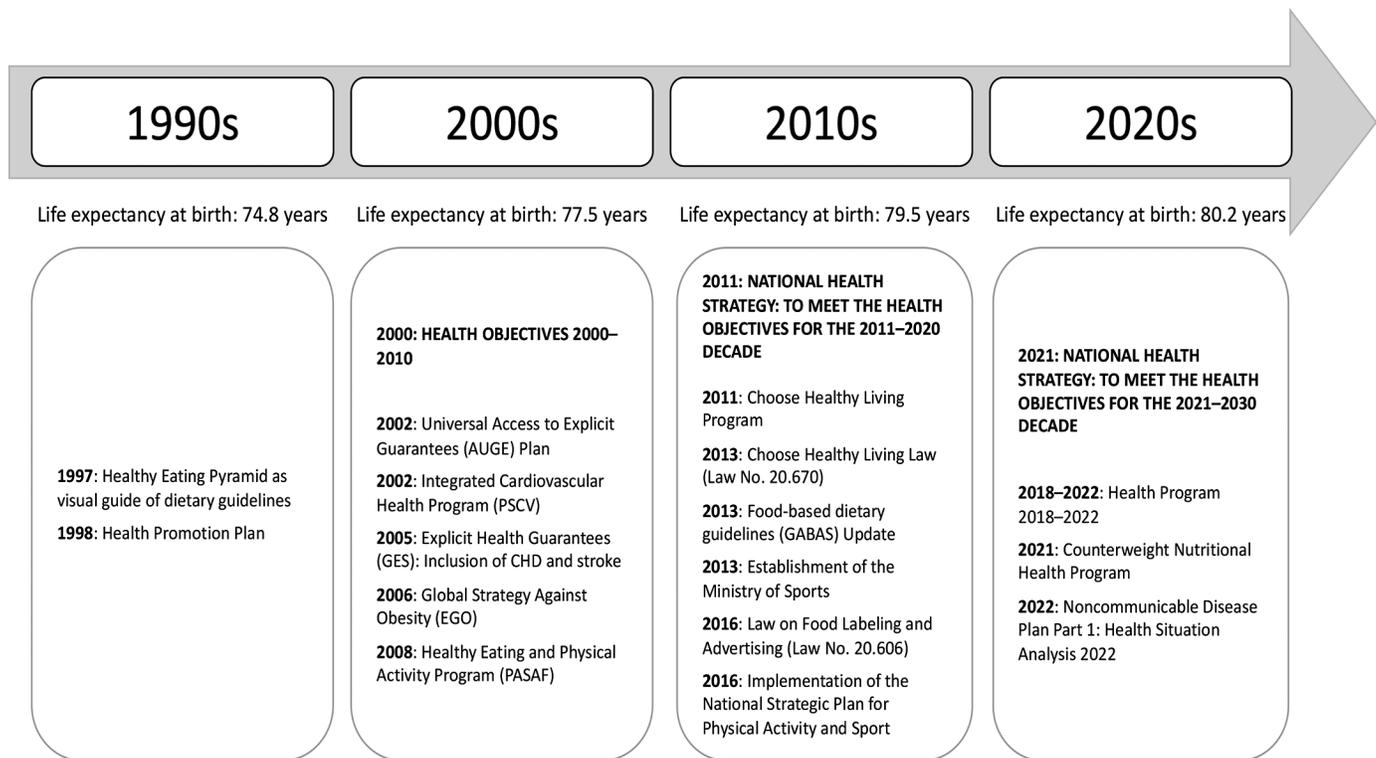
The reduction in CVD mortality has been reported in other Latin-American countries; for example, in 1996–2019, the AAPC

TABLE 4. Joinpoint analysis for cardiovascular diseases mortality trends in men in Chile, 2000–2020

	Total study period		Period 1		Period 2		Period 3	
	AAPC (95% CI)	Years	APC (95% CI)	Years	APC (95% CI)	Years	APC (95% CI)	
Cardiovascular diseases	-2.6* (-2.8, -2.4)	—	—	—	—	—	—	
Rheumatic heart disease	-9.0* (-10.3, -7.8)	—	—	—	—	—	—	
Hypertensive heart disease	0.0 (-3.5, 3.6)	2000–2005	4.2 (-3.1, 12.0)	2005–2009	-6.1 (-20.2, 10.5)	2009–2020	0.5 (-1.7, 2.7)	
Ischemic heart disease	-3.1* (-3.9, -2.2)	2000–2005	-2.5* (-4.2, -0.8)	2005–2009	-5.0* (-8.7, -1.1)	2009–2020	-2.6* (-3.1, -2.1)	
Stroke	-3.5* (-4.5, -2.6)	2000–2008	-3.2* (-3.9, -2.5)	2008–2011	0.6 (-5.8, 7.4)	2011–2020	-5.2* (-5.7, -4.6)	
Inflammatory heart disease	-3.5* (-4.2, -2.8)	—	—	—	—	—	—	
Ill-defined circulatory disease	-1.0* (-1.7, -0.3)	—	—	—	—	—	—	
Other circulatory diseases	-1.1* (-1.7, -0.5)	2000–2011	0.1 (-0.7, 0.9)	2011–2020	-2.4* (-3.5, -1.4)	—	—	

Notes: AAPC, average annual percent change; APC, annual percent change; CI, confidence interval; * $p < 0.05$ for change in trend; * indicates that the AAPC is significantly different from zero at the $\alpha = 0.05$ level.
Source: Prepared by the authors based on the study data.

FIGURE 2. Timeline of Chilean public health policies



Source: Prepared by the authors.

decreased in Brazil by -2.1% and -2.6% in men and women, respectively (25). Likewise, Martínez et al. (4) found an annual reduction of 2.2% and 1.8% in the AAMR for IHD and stroke, respectively, between 1990 and 2019 in 36 countries in the Americas. Chile and Canada represented the best-performing countries in the decrease of the IHD mortality rate. The authors found a strong ecological negative association between IHD and stroke mortality and population hypertension control (4). Our results are consistent with the findings of Lloyd-Sherlock et al. (26), who estimated a reduction in the AAMR of CVD in Chile in 2000–2015 of -0.7 , -2.2 , -2.9 , and -1.6 for population aged 30–49, 50–69, 70–79, and 80+ years, respectively.

Remarkably, the joinpoint in 2011 for hypertensive heart disease, IHD, and stroke almost coincides with the year when

Chile entered the group of high-income countries according to the World Bank classification. Therefore, our results confirm the influence of country income level on CVD mortality. Furthermore, the PURE Study found that high-income countries have lower CVD mortality rates than middle-income and low-income countries despite a higher cardiovascular risk factor burden (27).

According to the 2017 national census, 11.4% of the population is older people (65+ years), which is significantly higher than the 6.6% registered in the 1992 census (28). Older people are the age group with the highest cardiovascular risk. Therefore, we can expect an increase in the absolute number of deaths due to cardiovascular events in the coming decades, despite the reduction in CVD mortality, because of population

TABLE 5. Joinpoint analysis for cardiovascular diseases mortality trends in women in Chile, 2000–2020

	Total study period		Period 1		Period 2		Period 3	
	AAPC (95% CI)	Years	APC (95% CI)	Years	APC (95% CI)	Years	APC (95% CI)	
Cardiovascular diseases	-2.8^* ($-3.0, -2.6$)	—	—	—	—	—	—	
Rheumatic heart disease	-7.9^* ($-11.6, -4.0$)	2000–2018	-10.2^* ($-11.4, -8.9$)	2018–2020	16.0 ($-24.4, 78.1$)	—	—	
Hypertensive heart disease	0.0 ($-3.5, 3.6$)	2000–2005	4.2 ($-3.1, 12.0$)	2005–2009	-6.1 ($-20.2, 10.5$)	2009–2020	0.5 ($-1.7, 2.7$)	
Ischemic heart disease	-4.2^* ($-4.6, -3.8$)	—	—	—	—	—	—	
Stroke	-3.9^* ($-4.7, -3.1$)	2000–2008	-3.8^* ($-4.4, -3.2$)	2008–2011	0.2 ($-5.4, 6.2$)	2011–2020	-5.4^* ($-5.9, -4.9$)	
Inflammatory heart disease	-2.7^* ($-4.0, -1.3$)	2000–2006	2.3 ($-1.9, 6.7$)	2006–2020	-4.8^* ($-5.9, -3.6$)	—	—	
Ill-defined circulatory disease	-1.0^* ($-1.6, -0.4$)	—	—	—	—	—	—	
Other circulatory diseases	-0.3 ($-1.4, 0.8$)	2000–2003	4.4 ($-1.9, 11.0$)	2003–2012	0.6 ($-0.8, 1.9$)	2012–2020	-2.9^* ($-4.2, -1.6$)	

Notes: AAPC, average annual percent change; APC, annual percent change; CI, confidence interval; * $p < 0.05$ for change in trend; *indicates that the AAPC is significantly different from zero at the $\alpha = 0.05$ level.

Source: Prepared by the authors based on the study data.

aging and growth. Of the 41% increase in the absolute number of CVD deaths between 1990 and 2013 at the global level, half were attributed to population aging and a quarter to population growth, with similar trends observed in the Region of the Americas (26).

The National Health Strategy (NHS) 2011–2020 included targets and indicators to increase protective factors for cardiovascular health and improve the survival of patients with a cardiovascular event (29). This strategy increased the first-year survival of patients with myocardial infarction and stroke by 10% (29). Based on the positive results of the NHS 2011–2020, the challenges for the next decade will be to increase the effective coverage of comprehensive treatment for this group of diseases and guarantee access to rehabilitation services. This was established as a goal for 2030 to reduce the disease burden due to CVD in people 18 years and older (12). The expected results for the NHS 2021–2030 are: 1) To increase the control rate of hypertension at the population level; 2) To increase the coverage of effective treatments for CVD; 3) To increase the effective coverage of integrated treatment of cardiovascular risk in the healthcare network focused on gender; 4) To raise the effective coverage of cost-effective treatments in people with high cardiovascular risk; 5) To increase the coverage and quality in early continuous multidisciplinary rehabilitation associated with cardiovascular and cerebrovascular events (12).

On the other hand, HEARTS in the Americas, a Pan American Health Organization (PAHO) program to reduce cardiovascular events by controlling hypertension, diabetes, dyslipidemia, and lifestyle modifications, is being implemented in several countries of Latin America and the Caribbean, including Chile (30). HEARTS will be the institutionalized model of care for cardiovascular risk management, with special emphasis on the control of hypertension and secondary prevention in primary health care in the Americas by 2025 (29). Chile has participated in this initiative since 2018, and to date more than 100 health centers are implementing HEARTS strategies (31).

This study has several strengths. To the best of our knowledge, this is the most recent study analyzing CVD mortality trends in Chile, including data from the first year of the COVID-19 pandemic. Likewise, the joinpoint regression software has been widely used to analyze mortality trends in cardiovascular

and cerebrovascular disease (14–16). In addition, this analysis method achieves a better fit than linear models, reducing the trend to a single regression (32). However, our work also has limitations. The first is the lack of data beyond 2020 and the late effects of the pandemic on CVD mortality. Second, we had no data at the subnational level. This is an essential issue because significant differences in CVD mortality have been reported between regions of Chile (33). Third, the WHO Mortality Database does not include confidence intervals of AAMR; that is, it does not report the uncertainty of the estimate. Fourth, the data are not stratified according to major stroke pathological subtype (ischemic and hemorrhagic), considering the higher case fatality associated with hemorrhagic stroke (about 50%). Finally, we recognize that mortality trends studies only describe trends and do not seek to explain them (34). This analysis needs further work to investigate the association between trends in CVD mortality and sociodemographic characteristics, such as measures of income and healthcare expenditure (34).

Conclusion

In conclusion, we confirm that mortality rates from cardiovascular diseases significantly decreased in Chile between 2000 and 2020, especially for ischemic heart disease and stroke. Our results could be a reference for analyzing public policies implemented around primary prevention and management in acute myocardial infarction and acute stroke care that could be applied in countries with higher mortality rates.

Author contributions. AS conceived the original study, collected the data, analyzed the data, and interpreted the results. AS and TBC drafted the manuscript. All authors revised the manuscript. All authors accept accountability for the overall work and approved the final version of the manuscript.

Conflict of interest. None declared.

Disclaimer. The opinions expressed in this manuscript are solely the authors' responsibility and do not necessarily reflect the views or policies of the *RPSP/PAJPH* or the Pan American Health Organization (PAHO).

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Tendencias de la mortalidad por enfermedades cardiovasculares en Chile, 2000-2020

RESUMEN

Objetivo. Analizar las tendencias de la mortalidad por enfermedades cardiovasculares (ECV) en Chile durante el período 2000-2020.

Métodos. Los datos sobre la tasa de mortalidad ajustada por la edad (TMAE) por ECV por 100 000 habitantes en Chile durante el período 2000-2020 se extrajeron de la base de datos de mortalidad de la Organización Mundial de la Salud. Se utilizó la regresión de tipo *joinpoint* (punto de cambio) para analizar las tendencias y calcular el cambio porcentual anual promedio (CPAP) en Chile. Además, se realizaron análisis por sexo y por tipo de ECV.

Resultados. Entre el 2000 y el 2020, la TMAE por ECV disminuyó en Chile de 159,5 a 94,6 por 100 000 habitantes, con una disminución del CPAP estadísticamente significativa del 2,6% (IC del 95% [-2,8 a -2,4]). No se detectó ningún punto de cambio (*joinpoint*). La TMAE por ECV disminuyó anualmente un 2,6% (IC del 95% [-2,8 a -2,4]) en los hombres y un 2,8% (IC del 95% [-3,5 a -2,6]) en las mujeres. La TMAE por cardiopatía isquémica se redujo anualmente en un 3,6 % (IC del 95 % [-4,6 a -2,7]), encontrándose dos puntos de cambio en el 2011 y el 2015. En el caso de los ataques cerebrovasculares, la tasa de mortalidad disminuyó anualmente un 3,7% (IC del 95% [-4,5 a -3,0]), encontrándose dos puntos de cambio en el 2008 y el 2011.

Conclusiones. La tasa de mortalidad por ECV ha disminuido significativamente en Chile en ambos sexos, pero en especial en las mujeres. Este descenso podría explicarse principalmente por la reducción significativa de la letalidad observada en las últimas décadas. Estos resultados podrían constituir una referencia para la elaboración de políticas de prevención primaria y manejo de casos agudos de ECV que estén centradas en aquellos grupos poblacionales donde la mortalidad es más alta.

Palabras clave Enfermedades cardiovasculares; isquemia miocárdica; accidente cerebrovascular; mortalidad; análisis de regresión; Chile.

Tendências de mortalidade por doenças cardiovasculares no Chile, 2000-2020

RESUMO

Objetivo. Analisar as tendências de mortalidade causada por doenças cardiovasculares (DCV) no Chile no período de 2000 a 2020.

Métodos. Taxas de mortalidade por DCV ajustadas por idade no Chile referentes ao período de 2000 a 2020 foram extraídas do Banco de Dados de Mortalidade da Organização Mundial da Saúde. Foi usado um modelo de regressão linear segmentada (*joinpoint*) para analisar tendências e calcular a variação percentual média anual no Chile. Além disso, foram realizadas análises por sexo e tipo de DCV.

Resultados. No Chile, entre 2000 e 2020, a taxa de mortalidade por DCV ajustada por idade caiu de 159,5 para 94,6 por 100 mil habitantes, com uma redução estatisticamente significativa da variação percentual média anual de 2,6% (IC de 95% [-2,8; -2,4]). Não foram identificados pontos de inflexão. Anualmente, a taxa de mortalidade por DCV ajustada por idade caiu 2,6% (IC 95% [-2,8; -2,4]) e 2,8% (IC 95% [-3,5; -2,6]) entre homens e mulheres, respectivamente. A taxa de mortalidade por doença cardíaca isquêmica ajustada por idade caiu 3,6% (95% CI [-4,6; -2,7]) por ano, com dois pontos de inflexão (em 2011 e 2015). No caso do acidente vascular cerebral, a taxa de mortalidade diminuiu 3,7% (IC de 95% [-4,5; -3,0]) por ano, com dois pontos de inflexão (em 2008 e 2011).

Conclusões. As taxas de mortalidade por doenças cardiovasculares diminuíram significativamente no Chile em ambos os sexos, especialmente nas mulheres. Essa queda pode ser explicada principalmente por uma redução significativa na letalidade observada nas últimas décadas. Esses resultados podem ser uma referência para o desenvolvimento de políticas de prevenção primária e manejo de casos agudos de DCV voltadas para populações com maiores taxas de mortalidade.

Palavras-chave Doenças cardiovasculares; isquemia miocárdica; acidente vascular cerebral; mortalidade; análise de regressão; Chile.