

Economic fluctuations and educational inequalities in premature ischemic heart disease mortality in Argentina

Variaciones económicas y desigualdades educativas en la mortalidad prematura por enfermedad isquémica en Argentina

Flutuações econômicas e desigualdades educacionais na mortalidade prematura por doença isquêmica na Argentina

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doi: 10.1590/0102-311XEN181222

Abstract

Although mortality from ischemic heart disease has declined over the past decades in Argentina, ischemic heart disease remains one of the most frequent causes of death. This study aimed to describe the role of individual and contextual factors on premature ischemic heart disease mortality and to analyze how educational differentials in premature ischemic heart disease mortality changed during economic fluctuations in two provinces of Argentina from 1990 to 2018. To test the relationship between individual (age, sex, and educational level) and contextual (urbanization, poverty, and macroeconomic variations) factors, a multilevel Poisson model was estimated. When controlling for the level of poverty at the departmental level, we observed inequalities in premature ischemic heart disease mortality according to the educational level of individuals, affecting population of low educational level. Moreover, economic expansion was related to an increase in ischemic heart disease mortality, however, expansion years were not associated with increasing educational inequalities in ischemic heart disease mortality. At the departmental level, we found no contextual association between area-related socioeconomic level and the risk of ischemic heart disease mortality. Despite the continuing decline in ischemic heart disease mortality in Argentina, this study highlighted that social inequalities in mortality risk increased over time. Therefore, prevention policies should be more focused on populations of lower socioeconomic status in Argentina.

Myocardial Ischemia; Economic Recession; Socioeconomic Disparities in Health; Mortality; Multilevel Analysis

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Introduction

Ischemic heart disease has become the leading cause of death in large parts of the developing world ¹. Although ischemic heart disease mortality has declined over the past decades in Argentina ², it remains one of the most frequent causes of death. The decrease in ischemic heart disease mortality over the past 20 years has occurred during a period of major economic fluctuations. From 1999 to 2002 Argentina's economy, the third largest in Latin America after Brazil and Mexico, experienced a fall in Gross Domestic Product (GDP) annually, with the most severe drop in 2002. Unemployment reached 20% in the metropolitan area of Buenos Aires ³. Then, the economy grew steadily since 2003 until the global crisis hit Argentina in 2009.

Social and economic circumstances have been shown to be strongly related to ischemic heart disease risk. Many studies from high-income countries have reported inverse social trends of ischemic heart disease, that is, higher ischemic heart disease morbidity and mortality in lower social classes ^{4,5}. Efforts to understand such trend and its macrosocial determinants in Latin American countries remain limited ⁶. In particular, the role of the macroeconomic context, which seems to be essential in the temporal variation of deaths from cardiovascular diseases (CVDs), remains unclear outside high-income countries. On the other hand, most studies from high-income countries found a positive, procyclical relationship between economic growth and CVD mortality ^{7,8,9}, although studies in Latin America showed mixed results ^{10,11}. In the United States, for example, Ruhm ¹² found that the reduction in unemployment (during economic expansions) is associated with an increase in ischemic heart disease mortality, while Svensson ¹³ and Tapia Granados & Ionides ¹⁴ examined the relation between macroeconomic fluctuations and mortality in Sweden, reaching different conclusions. It has been hypothesized that the relation between economic recessions and lower ischemic heart disease risk is due to improved health behaviors and environmental conditions and less job related stress during recessions ¹². A study in Brazil ¹⁰ associated the increase in unemployment with an increase in CVD mortality; whereas a study in Mexico ¹¹ found a negative, counter-cyclical relationship between economic growth and CVD mortality in states with the lowest Human Development Index (HDI), and a procyclical relationship in female population in states with the highest HDI.

However, these findings about the fall (or rise) of mortality during economic downturns do not provide clear evidence about changes in socioeconomic inequality in mortality. For example, does mortality decline more considerably among lower or higher socioeconomic groups during economic recessions? What mechanisms might underlie such change? Lower socioeconomic groups would experience greater unemployment and job insecurity but lower consumption of alcohol and tobacco compared to groups with a higher socioeconomic level. On the other hand, the collapse of the Argentine financial system during 2001 and 2002, which affected the free availability of saving accounts, could have greatly increased the level of psychosocial stress in the population with a high socioeconomic level. Overall, there is little information on how macroeconomic changes modify socioeconomic inequality in ischemic heart disease mortality. The few studies on the subject show mixed results. For example, Valkonen et al. ¹⁵ found a decrease in the absolute inequality between male manual and non-manual workers in Finland during recessions. A study in Japan found an increased risk of male ischemic heart disease mortality in managers and some other categories of workers generally considered of lower status during economic stagnation ¹⁶. These studies in Finland and Japan may indicate a reduction of ischemic heart disease mortality during recessions. Another study in Finland suggested unchanged inequality levels during economic recession ¹⁷. To the best of our knowledge, no study have examined the impact of macroeconomic conditions on inequalities in ischemic heart disease among working-age population of a developing country ¹⁸.

Inequality in ischemic heart disease mortality by individual-level socioeconomic status, as well as the extent to which macroeconomic conditions could influence such inequality, may also depend on the pre-existing social-spatial distributions of ischemic heart disease mortality across local contexts, including local economic contexts and level of urbanization. Several studies in high-income countries have reported increased risk of death from ischemic heart disease in lower socioeconomic status areas, after adjusting for other individual characteristics ^{19,20,21,22}. However, in Latin American countries, the understanding of the impact of the socioeconomic characteristics of an area on ischemic heart disease mortality is still limited, since only a few ecological studies have investigated

this association with conflicting outcomes^{23,24,25,26,27}. Urbanization, which has developed rapidly in Latin America²⁸ has also been associated to ischemic heart disease mortality. Although some studies reported higher ischemic heart disease mortality rates in urban areas compared to rural areas for at least the mid-20th century in developed countries²⁹, recent studies showed mixed results. Recently, developed countries experienced a reversal, with higher mortality rates in rural areas and a convergence of both types of areas^{30,31}. On the other hand, data from developing countries generally suggest higher ischemic heart disease mortality rates in urban areas^{32,33,34,35}.

In this study, we sought: to (1) describe the role of individual and contextual factors in premature ischemic heart disease mortality; and (2) to analyze how educational differentials in premature ischemic heart disease mortality changed during economic fluctuations in two provinces of Argentina from 1990 to 2018, a period of significant macroeconomic fluctuations and growing urbanization, while adjusting for background individual and contextual factors. Considering previous investigations, we hypothesized that: (a) premature ischemic heart disease mortality is higher among individuals with low socioeconomic status (education) compared to those with high socioeconomic status; (b) premature ischemic heart disease mortality is lower during economic recessions; and (c) educational inequality in premature mortality is lower during economic recessions than during economic expansions.

Methods

Data and measures

Mortality data by year of death, age at death, sex, department and province of residence, and educational level were obtained from the Argentine Ministry of Health for the years 1990 to 2018. Deaths from ischemic heart disease were identified based on the 9th and 10th revisions of the International Classification of Diseases (ICD-9 codes: 410-414, and ICD-10 codes: I20-I25, respectively). Age was divided into two groups (25-44 and 45-64 years). Educational level (low and medium-high level) was used as an indicator for socioeconomic status at the individual level. Low educational level included those up to incomplete secondary education. Medium-high educational level included individuals who completed secondary school (6 or more years of primary school, 5 or more years of secondary school) or had incomplete or complete tertiary education (1 or more years of tertiary education or no tertiary education after secondary education).

Departments were the main spatial unit for residential context: the smallest sub-provincial territory with mortality data available. The departments located in the provinces of Mendoza (18 departments) and San Juan (19 departments) were included in the study area. These provinces were chosen since, compared to the other provinces of Argentina, they have a low percentage of ill-defined deaths (ICD-10 codes: R001-R99X)^{36,37} and also the most complete data on both deaths and educational level at the department level. Unfortunately, the poor quality of data on educational level in deaths for the rest of Argentina, makes impossible to conduct a nation-wide study of all departments. For example, in Argentina in 2018, 69% of all deaths of individuals aged 25 or over had unknown information on the educational level of them.

Departments with less than 5 deaths in any year were aggregated to another department. Firstly, the department with less than 5 deaths in any year was aggregated to another contiguous department with the same situation (< 5 deaths). Secondly, if the resulting aggregation increases the number of annual deaths to 5 or more per year in the new area, both departments form a new spatial unit. Otherwise, both departments are aggregated to another contiguous area with the same situation (< 5 deaths in any year), until the set of departments forms a new spatial unit with five deaths or more per year. This procedure was carried out within each province and, as a result, 16 spatial units remained. Thus, in Mendoza there were three new spatial units. In the western part of the province, a spatial unit comprised the departments of Rivadavia, San Carlos, Tunuyán, and Tupungato. The second spatial unit comprised the departments in the south of Mendoza (General Alvear, Malargüe, and San Rafael), while the third spatial unit comprised departments in the northeast of the province (Junín, La Paz, Lavalle, and Santa Rosa). In the province of San Juan there were three new spatial units. Two spatial units were located in the western part (departments of Calingasta, Iglesia, Jáchal, Pocito, Sarmiento,

Ullum, and Zonda) and eastern part of the province (Alabardón, Angaco, Caucete, San Martín, Valle Fertil, and 25 de Mayo). The third spatial unit comprised departments in the western metropolitan area of San Juan (Chimbas, 9 de Julio, and Santa Lucía). Virtually all spatial units had information on educational level in at least 80% of deaths annually for 1990 to 2018, with very few, negligible exceptions. For example, the Rivadavia department of the San Juan province had some missing data on educational level in 1990 (in 4 deaths out of 14) and in 1993 (in 2 deaths out of 8).

Two variables were used to measure local-level of socioeconomic status and urbanization. The percentage of households with unsatisfied basic needs was used as an indicator of socioeconomic status of each department. Population density (individuals per square kilometer) was used as an indicator of the urbanization level of the department. Population density and unsatisfied basic needs were estimated for each year from 1990 to 2018 by a linear projection using census data from 1991, 2001, and 2010. This estimation was also performed using population at the department level separately by sex, age group, and educational level.

To measure macroeconomic conditions, the annual change in the Gross Geographic Product (GGP, province output) of each province from 1994 to 2018 was used. This was a province-level factor, assigned to each department, with two categories indicating whether the year is one of economic expansion (positive GGP growth) or recession (null or negative GGP growth). These data were obtained from the Argentine Ministry of Economy^{38,39,40} and the Ministry of Economy and Finance of the Province of San Juan⁴¹.

Statistical analysis

To test the associations of premature ischemic heart disease mortality with individual and contextual factors, a multilevel Poisson model⁴² was estimated with cells at level 1, consisting of individuals in numerators and denominators cross-tabulated by age group, sex, and educational level, which were nested within 16 departments (or aggregated departments) at level 2. The model additionally adjusts for time (calendar year), province of residence, and a random intercept for the department. This base model (Model 1) estimates relative educational inequality in premature ischemic heart disease mortality from 1990 to 2018, averaged over years and adjusted for the included covariates. Model 2 subsumes Model 1 and further includes a dichotomous variable indicating whether the year is one of economic expansion (positive GGP growth) or recession (null or negative GGP growth) to assess educational inequality in premature ischemic heart disease mortality from 1994 to 2018. Model 3 subsumes Model 2 and further includes an interaction between the recession/expansion binary variable and educational level. Model 4 is similar to Model 1, however, it includes an interaction between year and educational level to allow for the possibility of differential evolution in mortality rates by educational level from 1990 to 2018. Finally, Model 5 subsumes Model 4 and further includes the recession/expansion binary variable, restricted to the period 1994 to 2018. Model 5 allows investigating annual changes in educational level in ischemic heart disease mortality net of changes in macroeconomic conditions. As a measure of relative inequality, the ratio of mortality rates between the two educational levels were used and adjusted for the rest of the covariates. To interpret the results, values of population density and unsatisfied basic needs were transformed into z-scores. Data were analyzed using Stata version 13.1 (<https://www.stata.com>).

Results

Table 1 shows the characteristics of premature deaths from ischemic heart disease. We observed 9,630 deaths, with most of them occurring in Mendoza (6,865; 71%). Unadjusted death rates were higher in men compared with women, in the 45-64 age group compared with the 25-44 age group, and in lower than in higher educated individuals (Table 1). A declining time trend was generally observed in men, in the 45-64 age group, and in individuals with a high educational level (Table 1). The unadjusted rates were higher in San Juan than in Mendoza. The median percentage of households with unsatisfied basic needs was 14 (standard deviation – SD = 4; interquartile range – IQR: 11-16; not shown in

Table 1

Unadjusted premature ischemic heart disease mortality rates (per 100,000) by selected characteristics. Mendoza and San Juan provinces, Argentina, 1990-2018.

	Sex		Age group (years)		Educational level	
	Female (n = 2,177)	Male (n = 7,453)	25-44 (n = 992)	45-64 (n = 8,638)	Low (n = 7,617)	Medium-high (n = 2,013)
Province						
Mendoza	14.3	52.5	2.7	71.6	43.0	17.4
San Juan	15.0	55.9	6.1	77.4	45.1	17.9
Year						
1990	27.1	77.8	8.3	116.2	61.8	18.0
1991	20.1	72.7	6.4	103.4	51.4	25.7
1992	16.6	67.9	5.7	94.0	48.3	19.8
1993	12.8	58.9	6.4	76.9	39.9	20.7
1994	12.9	60.4	6.5	78.3	39.2	26.0
1995	15.4	54.9	4.4	77.8	40.3	19.0
1996	14.2	58.1	6.0	77.5	39.9	23.7
1997	10.8	51.7	4.1	68.2	36.0	17.4
1998	15.2	60.3	6.3	80.2	44.0	20.8
1999	14.0	59.6	6.2	77.7	44.6	17.3
2000	12.9	56.7	6.8	71.8	42.0	17.6
2001	14.7	53.4	6.7	70.1	41.4	17.8
2002	11.9	54.0	4.8	70.3	39.7	18.5
2003	13.4	60.0	7.7	75.3	45.2	19.7
2004	11.5	53.9	6.2	68.3	41.8	15.7
2005	12.5	48.8	2.5	69.0	38.3	17.0
2006	10.4	56.4	4.5	72.8	43.5	16.3
2007	14.4	59.9	5.1	81.3	47.4	20.8
2008	13.6	52.6	8.4	67.3	41.9	19.7
2009	15.4	43.6	6.5	61.8	40.0	15.0
2010	14.4	48.3	5.2	68.0	41.9	17.2
2011	14.4	43.3	4.4	63.5	38.6	16.5
2012	12.2	46.7	5.1	64.0	42.0	14.4
2013	12.8	41.0	3.8	59.9	38.4	13.8
2014	12.4	44.2	5.3	61.2	39.6	15.9
2015	16.9	52.6	5.9	76.2	53.2	15.9
2016	20.3	49.8	6.6	76.3	53.0	17.7
2017	13.5	49.0	6.3	67.1	46.5	16.9
2018	16.7	42.2	6.5	62.7	44.8	16.0

Table 1), while the median population density was 158 inhabitants per km² (SD = 1,145; IQR: 6-998; not shown in Table 1).

In the base model (Model 1), we observed greater premature ischemic heart disease mortality among the low-education group, males, and older individuals (Table 2). However, there were no independent relationships between premature ischemic heart disease mortality and either poverty levels or population density of departments (Table 2). Overall, those with low education had 80% higher premature mortality than those with high-medium education (incidence-rate ratio – IRR = 1.8; 95% confidence intervals – 95%CI: 1.7-1.9). In Model 2, which further adjusts for economic recession/expansion, there were only small differences when compared to Model 1, except for the

province of residence variable. Furthermore, recessions were associated with 15% lower premature ischemic heart disease mortality, compared to years of economic growth (IRR = 0.85; 95%CI: 0.77-0.95) (Table 2).

Table 3 shows the changes in educational inequality in ischemic heart disease mortality throughout years of expansion and recession. These estimates are derived from Model 3, where we associated educational level with years categorized as expansion or recession. While the mortality IRR by education during expansions is slightly lower than during recessions (1.78 vs. 1.84), the two quantities were not statistically different (Table 3): during recessions relative education inequality might have grown by only a 4% (ratio of IRRs = 1.04; 95%CI: 0.93-1.16).

Figure 1 and Figure 2 show education-adjusted ischemic heart disease mortality rates as well as mortality IRRs by education, respectively, based on marginal predicted rates obtained following multilevel Poisson model including all explanatory variables and an interaction between year and educational level (Model 4). Although adjusting for whether years had economic expansion or recession, a general trend of increasing educational inequalities in ischemic heart disease mortality was always observed (figures available upon request, for Model 5 restricted from 1994 to 2018).

Table 2

Adjusted incidence-rate ratios (IRR) of premature ischemic heart disease mortality associated with individual (educational level, sex, and age) and contextual variables. Mendoza and San Juan provinces, Argentina, 1990-2018.

	Model 1 (1990-2018) IRR (95%CI)	Model 2 (1994-2018) IRR (95%CI)
Educational level		
Medium-high	Reference	Reference
Low	1.79 * (1.70-1.88)	1.80 * (1.70-1.90)
Sex		
Male	Reference	Reference
Female	0.27 * (0.26-0.28)	0.27 * (0.25-0.28)
Age group (years)		
25-44	Reference	Reference
45-64	11.96 * (11.20-12.78)	11.70 * (10.90-12.56)
Province of residence		
Mendoza	Reference	Reference
San Juan	1.08 (0.97-1.20)	1.14 ** (1.02-1.27)
Annual change in GGP		
Expansion	-	Reference
Recession	-	0.85 ** (0.77-0.95)
Department-level unsatisfied basic needs (1 SD)	0.95 (0.87-1.03)	0.95 (0.86-1.04)
Population density (1 SD)	1.03 (0.95-1.12)	1.03 (0.95-1.13)

95%CI: 95% confidence interval; GGP: Gross Geographic Product; SD: standard deviation.

Note: all estimates from the same multivariable Poisson model with random intercepts for department and year fixed effects.

* p-value < 0.001;

** p-value < 0.05.

Table 3

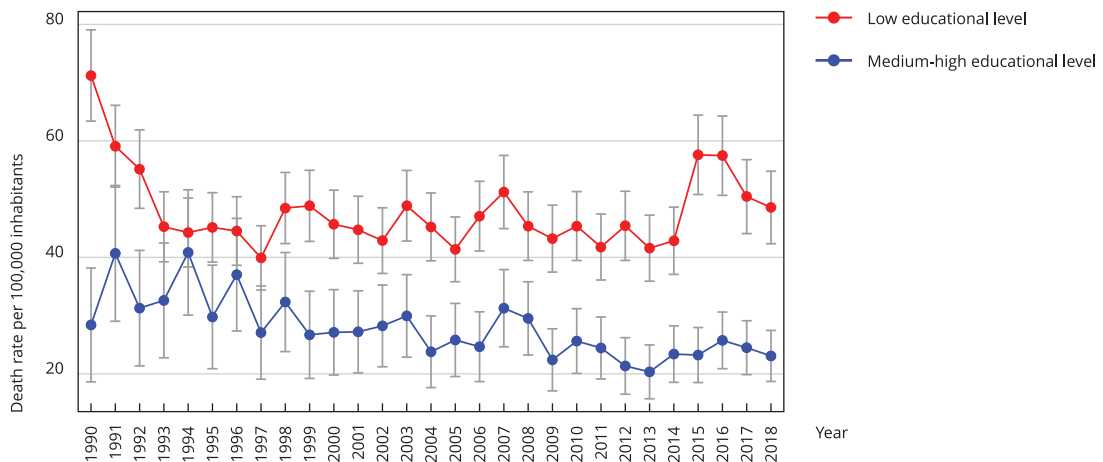
Adjusted premature ischemic heart disease mortality rates and relative risks across educational groups (relative inequality) in recession vs. expansion years. Mendoza and San Juan provinces, Argentina, 1994-2018.

Years of expansion and recession/Educational level	Mortality rate (per 100,000 inhabitants)	Relative risks of mortality of education (relative inequality)	Ratio of educational inequality in recession vs. expansion years
Expansion			Reference
High-medium	27.75 (25.46-30.03)	Reference	
Low	49.29 (46.00-52.27)	1.78 (1.66-1.90)	
Recession			1.04 (0.93-1.16)
High-medium	23.03 (20.61-25.44)	Reference	
Low	42.41 (38.91-45.91)	1.84 (1.68-2.01)	

Note: 95% confidence intervals (95%CI) are in parentheses. Relative risks are estimated as incidence-rate ratios (IRR) from Poisson Model 3, adjusted for age, sex, year, province of residence, population density (department level), and unsatisfied basic needs (department level).

Figure 1

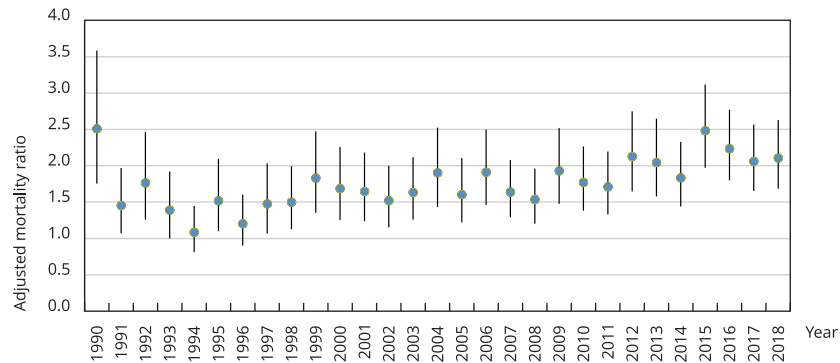
Education level-adjusted premature deaths per 100,000 inhabitants due to ischemic heart diseases. Mendoza and San Juan provinces, Argentina, from 1990 to 2018.



Note: vertical bars represent 95% confidence intervals (95%CI).

Figure 2

Adjusted mortality ratios using the population of medium-high educational level as standard. Mendoza and San Juan provinces, Argentina, from 1990 to 2018.



Notes: vertical bars represent the 95% confidence intervals (95%CI). Model including all explanatory variables and an interaction between year and educational level.

Discussion

Using mortality data linked to geographic data from two Argentine provinces observed over 29 years, we found the following: (1) lower education is associated with higher premature ischemic heart disease mortality regardless of key individual and contextual factors, including department-level poverty and urbanization; (2) during our 29-year period there was a constant trend of increasing educational inequalities in premature ischemic heart disease mortality; (3) premature ischemic heart disease mortality was lower in years of economic recession compared with years of economic growth; (4) however, there were no significant differences in educational inequalities in premature ischemic heart disease mortality between both periods of recession and growth. To our knowledge, this is the first Latin American study that analyzed differences in premature ischemic heart disease mortality by educational level during periods of recession and economic expansion.

Similar to another study that investigated socioeconomic differences in risk factors for chronic diseases in Argentina ⁴³, our study found an increased risk of ischemic heart disease deaths in individuals with low educational level compared with individuals with medium-high educational level. These data corroborate other studies that found differences in ischemic heart disease mortality according to education level in higher-income countries ^{4,5,44,45,46}.

A trend of increasing educational inequalities in premature ischemic heart disease mortality was observed from 1990 to 2018, as a result of a decrease in mortality in the population with a high-medium educational level and an increase in the population with low educational level. This trend could be associated with a decrease in the prevalence of smoking from 2005 to 2013 in Argentina ^{47,48}, but with a parallel increase in educational inequalities in smoking during this period ⁴⁷. Obesity, also linked to ischemic heart disease deaths, also revealed increasing educational inequalities in women from 2005 to 2009, a period of high economic growth ⁴⁹. Another study found an increase in these inequalities among men from 2005 to 2013 ⁴⁸.

The risk of premature mortality due to ischemic heart disease was lower during years with negative GDP growth, i.e., recession years, compared with years of economic expansion. This finding, which corroborates the existing literature from higher-income countries, suggests that during recession years factors such as decreased smoking, reduced fat intake, and less exposure to air pollution may be more influential in lowering ischemic heart disease mortality ^{12,50} than the stress caused by the loss of employment and the financial crisis that Argentina experienced in 2001.

Despite the decline in premature ischemic heart disease mortality during recession years, educational disparities in mortality remained stable between years of recession and years of economic growth. This finding is in line with what was found in Finland¹⁷ and Spain⁵¹. This may indicate that more general factors, such as the decrease in air pollution during recession years⁵², due to less traffic and decreased industrial activity, could reduce the risk of premature ischemic heart disease mortality in both educational groups by similar proportions. A decrease in smoking during recession years has been observed for a long time⁵³ and could be also causing the decrease in premature ischemic heart disease mortality.

This study has several limitations. Firstly, we could not introduce explanatory variables related to lifestyles, such as smoking, physical activity, and alcohol consumption. Data on these variables are not available together with mortality data. Secondly, the spatial units used in this study may reflect a broad level of generalization, suppressing significant variations within the spatial units. This is part of the modifiable area unit problem. As previously observed in other studies, using smaller areas than departments (e.g., census tracts), may show positive relationships between area poverty levels and premature ischemic heart disease mortality. Finally, the findings of this study correspond only to the provinces of Mendoza and San Juan, two areas that cannot be considered as representative, in demographic and socioeconomic terms, of the rest of the 24 jurisdictions (23 provinces and the city of Buenos Aires) of Argentina. However, the GGP's of Mendoza and San Juan have a medium-high and medium position compared with other jurisdictions, respectively⁵⁴. Demographically, both provinces are similar to Argentina. The percentage of men and women is the same (49% in Mendoza, San Juan and Argentina), while the percentage of economically active individuals is very similar (15-64 years: 64% in Mendoza, 63% in San Juan, and 64% in Argentina)⁵⁵.

Despite the continuing decline in ischemic heart disease mortality in Argentina⁵⁶, this study highlights that social inequalities in premature mortality risk have increased over time. Therefore, prevention policies should be more focused on populations of lower socioeconomic status. Finally, the years of economic recession were associated with decreases in the risk of ischemic heart disease mortality. Therefore, it could be appropriate to take advantage of the years of economic growth, with greater availability of resources, to improve transport infrastructure in a more sustainable way, focusing in the use of public transportation, bicycles, and walking as a way of exercising, as well as to provide better access to healthy foods.

Contributors

C. M. Leveau contributed to the study conception and design, data acquisition, analysis, and interpretation, writing, and review; and approved the final version of the manuscript. M. Hussein contributed to the study conception and design, data analysis and interpretation, and review; and approved the final version of the manuscript. J. A. Tapia-Granados contributed to the study conception and design, data analysis and interpretation, and review; and approved the final version of the manuscript. G. A. Velázquez contributed to the study conception and design, data interpretation, and review; and approved the final version of the manuscript.

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Acknowledgments

The authors acknowledge the valuable contribution of Ana Diez Roux. C. M. Leveau was supported by a short term scholarship from Drexel University (United States).

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Resumen

Si bien la mortalidad por cardiopatía isquémica ha disminuido en las últimas décadas en Argentina, la cardiopatía isquémica sigue siendo una de las causas más frecuentes de muerte. Los objetivos de este estudio fueron describir el papel de los factores individuales y contextuales en la mortalidad prematura por cardiopatía isquémica y analizar cómo estos cambiaron las diferencias educativas en la mortalidad prematura por cardiopatía isquémica durante las variaciones económicas en dos provincias de Argentina durante el periodo 1990-2018. Para probar la relación entre los factores individuales (edad, género y nivel de educación) y contextuales (urbanización, pobreza y variaciones macroeconómicas), se estimó un modelo de Poisson multinivel. Controlando el nivel de pobreza en el ámbito departamental, se observaron desigualdades en la mortalidad prematura por cardiopatía isquémica según el nivel de educación de los individuos, lo que afecta a la población con bajo nivel de educación; la expansión económica se relacionó con el aumento de la mortalidad por cardiopatía isquémica; sin embargo, el periodo de expansión no estuvo asociado a aumentos de las desigualdades educativas en la mortalidad por cardiopatía isquémica. En el ámbito departamental no se detectó asociación entre el nivel socioeconómico de la área y el riesgo de mortalidad por cardiopatía isquémica. A pesar de la disminución continua de la mortalidad por cardiopatía isquémica en Argentina, este estudio destaca que las desigualdades sociales con relación al riesgo de mortalidad tuvieron un aumento con el tiempo. Por lo tanto, las políticas de prevención deberán dirigirse más a las poblaciones de menor nivel socioeconómico en Argentina.

Isquemia Miocárdica; Recesión Económica; Disparidades Socioeconómicas en Salud; Mortalidad; Análisis Multinivel

Resumo

Embora a mortalidade por doença isquêmica do coração tenha diminuído nas últimas décadas na Argentina, a doença isquêmica do coração continua sendo uma das causas mais frequentes de morte. Os objetivos deste estudo foram descrever o papel de fatores individuais e contextuais na mortalidade prematura por doença isquêmica do coração e analisar como as diferenças educacionais na mortalidade prematura por doença isquêmica do coração mudaram durante as flutuações econômicas em duas províncias da Argentina durante o período 1990-2018. Para testar a relação entre fatores individuais (idade, sexo e escolaridade) e contextuais (urbanização, pobreza e variações macroeconômicas), estimou-se um modelo de Poisson multinível. Controlando o nível de pobreza no nível departamental, observaram-se desigualdades na mortalidade prematura por doença isquêmica do coração de acordo com o nível educacional dos indivíduos, afetando a população de baixa escolaridade; a expansão econômica esteve relacionada ao aumento da mortalidade por doença isquêmica do coração; no entanto, os anos de expansão não foram associados a aumentos nas desigualdades educacionais na mortalidade por doença isquêmica do coração. No nível departamental, não foi detectada uma associação contextual entre nível socioeconômico da área e risco de mortalidade por doença isquêmica do coração. Apesar do contínuo declínio da mortalidade por doença isquêmica do coração na Argentina, este estudo destaca que as desigualdades sociais em relação ao risco de mortalidade aumentaram ao longo do tempo. Portanto, as políticas de prevenção devem ser mais focadas nas populações de menor nível socioeconômico na Argentina.

Isquemia Miocárdica; Recessão Económica; Disparidades Socioeconômicas em Saúde; Mortalidade; Análise Multinível

Submitted on 27/Sep/2022

Final version resubmitted on 15/Feb/2023

Approved on 02/Mar/2023