

Epidemiological profile of patients affected by acute myocardial infarction in the Southeast Region of Brazil from 2018 to 2025

Perfil epidemiológico de pacientes afectados por infarto agudo de miocardio en la Región Sudeste de Brasil en el período de 2018 a 2025

Perfil epidemiológico de pacientes afetados por infarto agudo do miocárdio na Região Sudeste do Brasil no período de 2018 a 2025

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Abstract

This study aimed to characterize the epidemiological profile of patients affected by acute myocardial infarction (AMI) in the Southeast Region of Brazil between 2018 and 2025. It is a descriptive, documentary-based study utilizing secondary data from scientific literature and official health information systems, including the Mortality Information System (SIM), the Hospital Information System of the Unified Health System (SIH-SUS), and TabNet/DATASUS, with data collection conducted between August and October 2025. Descriptive statistics and thematic analysis were applied to integrate demographic, hospital, and clinical indicators. A male predominance was observed in hospitalizations, whereas women exhibited higher in-hospital mortality rates. Hospital admissions increased with age, peaking in the 60-69 age group. In the state of São Paulo, 222,187 hospitalizations and 20,460 deaths were recorded between 2019 and 2024. Diabetes mellitus, chronic kidney disease, hypertension, and obesity were identified as prominent risk factors. Additionally, the average length of hospital stay decreased from 17.6 to 5.8 days. It is concluded that AMI remains a significant public health issue in the region, necessitating the prevention of risk factors, early diagnosis, and timely care, with due consideration given to differences based on sex and age group.

Descriptors: Epidemiology; Risk Factors; Hospitalization; Myocardial Infarction; Mortality.

Resumen

El objetivo fue caracterizar el perfil epidemiológico de los pacientes afectados por infarto agudo de miocardio (IAM) en la Región Sudeste de Brasil entre 2018 y 2025. Se realizó una investigación documental y descriptiva basada en datos secundarios provenientes de documentos científicos y sistemas oficiales de información en salud, incluidos el SIM, el SIH-SUS y TabNet/DATASUS, con búsquedas efectuadas entre agosto y octubre de 2025. Se emplearon estadística descriptiva y análisis temático para integrar indicadores demográficos, hospitalarios y clínicos. Se observó un predominio masculino en las hospitalizaciones, mientras que las mujeres presentaron una mayor letalidad hospitalaria. Las hospitalizaciones aumentaron con la edad, alcanzando un pico entre los 60 y 69 años. En el estado de São Paulo, se registraron 222.187 hospitalizaciones y 20.460 defunciones entre 2019 y 2024. La diabetes mellitus, la enfermedad renal crónica, la hipertensión y la obesidad destacaron entre los factores de riesgo. Asimismo, se produjo una reducción de la estancia hospitalaria media, pasando de 17,6 a 5,8 días. Se concluye que el IAM sigue siendo un problema relevante para la salud pública regional, lo que exige la prevención de los factores de riesgo, el diagnóstico precoz y una atención oportuna, prestando especial atención a las diferencias según el sexo y el grupo de edad.

Descritores: Epidemiología; Factores de Riesgo; Hospitalización; Infarto de Miocardio; Mortalidad.

Resumo

Objetivou-se caracterizar o perfil epidemiológico dos pacientes afetados por infarto agudo do miocárdio (IAM) na Região Sudeste do Brasil entre 2018 e 2025. Pesquisa documental e descritiva, baseada em dados secundários provenientes de documentos científicos e de sistemas oficiais de informação em saúde, incluindo SIM, SIH-SUS e TabNet/DATASUS, com buscas realizadas de agosto a outubro de 2025. Foram aplicadas estatística descritiva e análise temática para integrar indicadores demográficos, hospitalares e clínicos. Observou-se predominância masculina nas hospitalizações, enquanto as mulheres apresentaram maior letalidade hospitalar. As internações aumentaram com a idade, com pico entre 60 e 69 anos. No estado de São Paulo, registraram-se 222.187 hospitalizações e 20.460 óbitos entre 2019 e 2024. Diabetes mellitus, doença renal crônica, hipertensão e obesidade destacaram-se entre os fatores de risco. Também houve redução da permanência hospitalar média, de 17,6 para 5,8 dias. Conclui-se que o IAM permanece relevante para a saúde pública regional, exigindo prevenção dos fatores de risco, diagnóstico precoce e assistência oportuna, com atenção às diferenças por sexo e faixa etária.

Descritores: Epidemiologia; Fatores de Risco; Hospitalização; Infarto do Miocárdio; Mortalidade.



Introduction

Cardiovascular diseases (CVDs) are the leading cause of morbidity and mortality worldwide and in Brazil, with coronary events and strokes accounting for a substantial proportion of these deaths^{1,2}. Acute myocardial infarction (AMI) is an acute coronary syndrome (ACS) of multifactorial etiology, characterized by myocardial necrosis resulting from the interruption or severe impairment of coronary blood supply³. Delays in diagnosis and therapeutic intervention substantially increase morbidity and mortality associated with this condition, as a significant proportion of deaths occur within the first hours after symptom onset, often before hospital care is provided².

During the COVID-19 pandemic, lifestyle changes, such as increased physical inactivity, combined with the psychological effects and characteristics of that period, exacerbated cardiovascular risk factors and increased population vulnerability to acute ischemic events³. In this context, epidemiological investigations based on health information systems are essential for assessing the impact of the disease according to demographic variables such as age, sex, and geographic region^{2,3}. Furthermore, recent data indicate that AMI is increasingly affecting younger age groups, in whom the condition has substantial potential for severe outcomes and rapid progression. One of the main factors contributing to early-onset myocardial infarction in this population is early exposure to modifiable risk factors associated with modern lifestyles and chronic stress⁴.

In this context, the present study aimed to map and characterize the epidemiological profile of patients affected by AMI in Southeastern Brazil between 2018 and 2025 by integrating data obtained from official health information systems, including the Mortality Information System (SIM), the Hospital Information System of the Brazilian Unified Health System (SIH-SUS), and TabNet/DATASUS^{2,3}.

Methodology

This study was a descriptive documentary investigation using a mixed-methods approach (quantitative and qualitative), based on the analysis of secondary data available in scientific documents and official health information systems. The quantitative component described indicators related to sex, age, hospitalizations, case fatality, and risk factors, whereas the qualitative component was used to interpret epidemiological patterns and contextualize the findings.

The searches were conducted in August, September, and October 2025. Documentary sources included scientific publications retrieved from the SciELO, PubMed, and LILACS databases, as well as materials identified through the Springer Nature, EBSCO Discovery Service, and DynaMed platforms. Documents and data from the Mortality Information System (SIM), the Hospital Information System of the Brazilian Unified Health System (SIH-SUS), TabNet/DATASUS, the Brazilian Ministry of Health, the Brazilian Society of Cardiology, and the World Health Organization (WHO) were also analyzed. The bibliographic sources were used as a theoretical and

comparative basis; this study was not designed as a systematic review.

Documents published between 2018 and 2025 were included if they contained data relating to Southeastern Brazil, concerned populations aged 15 years or older, were available in full text, and consisted of scientific articles, technical reports, or official documents published in Portuguese, Spanish, or English. Documents outside the specified time frame or geographic scope, duplicate studies, editorials, letters, abstracts without data, and materials lacking epidemiological information relevant to the study objective were excluded. Document selection took place during the same period as the searches, from August to October 2025. The initial search identified 101 scientific documents related to the topic. After titles and abstracts were reviewed and the inclusion and exclusion criteria were applied, 91 documents were excluded, leaving 10 articles for inclusion.

Because the study used exclusively secondary, aggregated, publicly accessible data, with no possibility of individually identifying participants, as well as previously published scientific literature, it was exempt from registration and review by the CEP/Conep Research Ethics System and, consequently, from obtaining an opinion from a Research Ethics Committee. This exemption was based on Article 1, sole paragraph, items II, III, V, and VI, of Resolution No. 510/2016 of the Brazilian National Health Council, which excludes from ethical review research using publicly accessible information, public-domain information, databases containing aggregated data without individual identification, and scientific texts used for literature reviews⁵. For the same reason, informed consent was not required. Nevertheless, the principles of transparency, accuracy, and responsible use of information were observed throughout all stages of the study.

In parallel, between August and October 2025, the official SIM, SIH-SUS, and TabNet/DATASUS databases were consulted^{2,3}, information on hospitalizations, mortality, risk factors, and the epidemiological profile of patients with AMI in Southeastern Brazil was extracted. Because some of the selected articles also used secondary data from these systems, a critical comparison was conducted between the published scientific findings and the official records.

Quantitative data were analyzed using descriptive statistics, including absolute and relative frequencies, percentages, and rates, and were organized into comparative tables and graphs using Excel and SPSS. Qualitative data underwent thematic analysis, integrating findings from scientific and institutional documents to interpret the epidemiological context under investigation. Data tabulation and analysis were conducted between October and November 2025.

Results

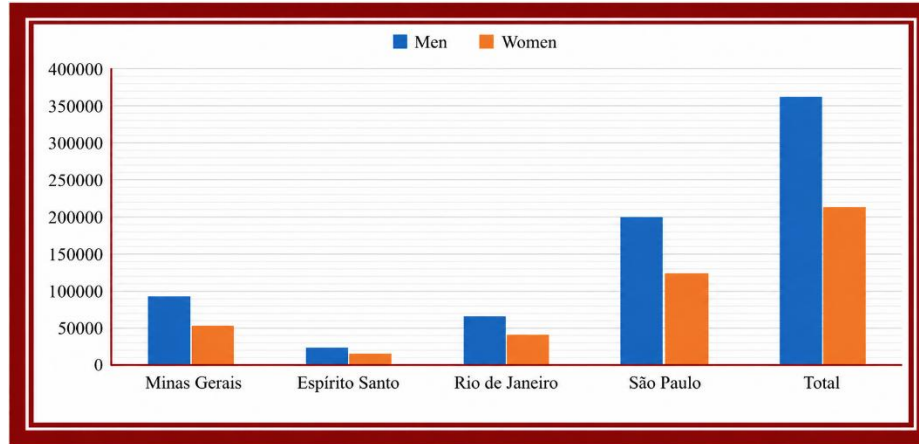
Initially, to contextualize the sources used, the characteristics of the studies and databases included in the analysis of AMI-related hospitalizations were summarized, including their target populations, study periods, geographic coverage, data sources, and sample sizes. A Brazilian cohort



study involving 29,041 patients hospitalized for a first AMI revealed a clear predominance of men: 17,757 patients (61.14%) were male and 11,284 (38.86%) were female. Although women were less frequently represented in the cohort, they had a potentially poorer prognosis, with a higher incidence of adverse cardiovascular events (a

composite outcome that included death) during the five-year follow-up after hospital discharge⁹. To compare hospitalization rates between sexes, Graph 1 presents the number of AMI-related hospitalizations among men and women in each federative unit of Southeastern Brazil and across the region between 2018 and 2025.

Graph 1. AMI-related hospitalizations by sex and federative unit. Southeastern Brazil, 2018–2025



Source: Brazilian Ministry of Health — Hospital Information System of the Brazilian Unified Health System (SIH/SUS)³.

Graph 1 shows that AMI-related hospitalizations were more numerous among men than women in every federative unit of Southeastern Brazil and across the region, totaling 362,794 hospitalizations among men and 205,331 among women³. According to Aragão et al., AMI-related hospitalizations in the region showed a slight upward trend between 2018 and 2023 in both sexes⁷. The predominance of men may be explained by greater exposure to risk factors such as smoking, alcohol consumption, and occupational stress, as well as the tendency for AMI to occur at younger ages in men^{1,10}. Conversely, studies indicate that hospitalizations among women increase more markedly after age 60, a period associated with declining estrogen-mediated hormonal protection¹², that suggests a progressive increase in cardiovascular risk among postmenopausal women⁶.

The distribution of AMI-related hospitalizations by age group and federative unit in Southeastern Brazil from 2018 to 2025 was examined using SIH/SUS records³. The absolute distribution of AMI-related hospitalizations by age group in Southeastern Brazil shows an increase in hospitalizations with advancing age, peaking in the 60–69-year age group in all states analyzed. In Minas Gerais, the number of cases ranged from 112 among individuals aged 15–19 years to 42,760 among those aged 60–69 years, followed by a decline in subsequent age groups (29,306 cases among individuals aged 70–79 years and 14,413 among those aged 80 years or older). Espírito Santo followed the same pattern, with 13 cases among adolescents and a peak of 8,403 cases in the 60–69-year age group. In Rio de Janeiro, the number increased from 89 cases among individuals aged 15–19 years to a peak of 31,584 among those aged 60–69 years, followed by 20,297 cases in the 70–79-year group and 7,841 among individuals aged 80 years or older. São Paulo recorded the highest absolute numbers across all age groups, with 202 cases in the youngest group

and a peak of 99,073 hospitalizations among individuals aged 60–69 years, followed by 65,082 cases among those aged 70–79 years and 26,965 among those aged 80 years or older. Across the region, hospitalizations totaled 416 cases among individuals aged 15–19 years, 3,271 among those aged 20–29 years, 13,941 among those aged 30–39 years, 55,859 among those aged 40–49 years, and 131,537 among those aged 50–59 years. The number peaked at 181,820 cases in the 60–69-year group, then declined to 120,226 among individuals aged 70–79 years and 51,801 among those aged 80 years or older³. These figures indicate that older age and male sex are important determinants of AMI-related morbidity in Southeastern Brazil, reinforcing the need for targeted preventive guidelines and policies. Regarding race and skin color, a study of AMI mortality among young adults in Brazil between 2019 and 2024, involving a total of 13,408 hospitalizations, found that self-identified White (41.22%) and Brown or mixed-race (29.02%) patients were the most affected groups in this age range, while 29.76% of records were classified as “Other/Not reported.” This substantial proportion highlights gaps in the recording of race and skin color⁴.

In the state of São Paulo, an analysis of the epidemiological profile of AMI between 2019 and 2024 identified 222,187 hospitalizations and 20,460 deaths, corresponding to an in-hospital mortality rate of 9.21% over the period. Most hospitalizations and deaths occurred among men, who accounted for 56.74% of hospitalizations and 56.74% of deaths, compared with 43.26% among women⁶.

A more detailed analysis of AMI-related hospitalizations in the city of São Paulo between 2020 and 2025 identified 149,672 hospitalizations and 18,267 deaths, with an average in-hospital case-fatality rate of 12.20% over the period (Table 1)¹. The data for 2025 represent a partial extract from the information system.



Table 2 summarizes the estimated in-hospital case-fatality rates for AMI reported in the selected studies, along

with their geographic coverage and the main findings and clinical conditions associated with each estimate.

Table 1. AMI-related hospitalizations, deaths, and in-hospital case-fatality rates in the city of São Paulo. Southeastern Brazil, 2020–2025

Year	Hospitalizations	Deaths	In-hospital case-fatality (%)
2020	22,744	2,925	12,86
2021	22,896	3,027	13,22
2022	26,148	3,158	12,08
2023	25,870	2,941	11,37
2024	25,754	2,858	11,10
2025*	26,260	3,358	12,79
Total (2020–2025)	149,672	18,267	12,20

Note: *2025 data cover a partial period.

Source: Brazilian Ministry of Health — Hospital Information System of the Brazilian Unified Health System (SIH/SUS)³.

Table 2. Estimated in-hospital case-fatality rates for AMI according to the selected studies. Southeastern Brazil, 2018–2025

Author/source	Geographic coverage	Estimated in-hospital case-fatality	Findings and associated conditions
Silva et al. ⁶	São Paulo	~8,0%–9,2%	Slightly higher rates among older adults and patients with diabetes
Aragão et al. ⁷	Southeastern	8,0%–11,0%	Higher rates in postmenopausal age groups
Yamamoto et al. ⁸	Southeastern	6,0%–7,0%	Variations correlated with atherosclerotic disease severity
Guida et al. ⁹	Brazil (TriNetX network)	8,0%–10,0%	Poorer prognosis among women and in cohorts at high cardiovascular risk
Nascimento et al. ¹⁰	Referral center (SP)	6,0%–7,0%	Lower case fatality associated with strict reperfusion protocols
Caetano et al. ¹¹	Southeastern	~8,0%–10,0%	Variation according to time to initial treatment
Ribeiro e Costa ¹²	Southeastern	Higher among women	Worsened by emotional stress and delayed diagnosis
Bonilha ¹³	São Paulo (public hospital)	~12,0%	Surgical population with complex multivessel coronary artery disease
Galhardi et al. ¹⁴	São Paulo	Higher in the presence of complications	Worsened by bleeding and post-angioplasty complications
Brazil – DATASUS³	São Paulo	7,0%–8,0%	Downward trend in the most recent period

The studies analyzed provide a comprehensive overview of in-hospital case-fatality rates for acute myocardial infarction (AMI) in the Southeast Region of Brazil, highlighting both overall trends and variations by state, sex, and clinical characteristics (Table 2). Silva et al.⁶, focusing on the state of São Paulo, describe a slight increase in in-hospital mortality in recent years, associated with comorbidities such as hypertension and diabetes. Researchers report that the average case-fatality rate in the region remains between 8% and 11%, with slightly higher rates in Minas Gerais and Rio de Janeiro, possibly due to differences in infrastructure and access to invasive therapies⁷.

Yamamoto et al.⁸ report an overall increase in hospitalizations and deaths due to atherosclerotic diseases, including AMI, particularly among individuals older than 65 years, suggesting an impact of population aging and uncontrolled risk factors. Differences between sexes are also relevant: one study found that women had a poorer prognosis after their first AMI and a higher prevalence of comorbidities such as hypertension, diabetes, and obesity. These findings may be associated with delays in symptom recognition and the implementation of invasive treatments⁹.

Conversely, Nascimento et al.¹⁰ show that referral hospitals with specialized protocols can achieve lower case-fatality rates (approximately 6%–7%), highlighting the importance of infrastructure and standardized protocol-

based management. Caetano et al.¹¹ report variability in case-fatality rates between 8% and 10%, depending on the patient's condition and clinical complexity, while another study indicates that patients eligible for surgical revascularization have higher mortality rates (approximately 12%) due to the severity of their cases¹³.

Additional factors, such as chronic stress among women¹² and hemorrhagic complications following stent implantation¹⁴, are also associated with poorer in-hospital outcomes. Finally, DATASUS data for the state of São Paulo suggest a downward trend in case-fatality rates, reaching 7%–8%, potentially attributable to faster reperfusion protocols and more effective management of complications³. Taken together, these studies indicate that in-hospital case-fatality rates for AMI in the Southeast Region range from 6% to 12% and are influenced by comorbidities, age, sex, clinical complexity, hospital infrastructure, and therapeutic management.

To assess in-hospital mortality by sex, Graph 2 presents the number of in-hospital deaths due to AMI among men and women, by federative unit and for the Southeast Region as a whole, between 2018 and 2025.

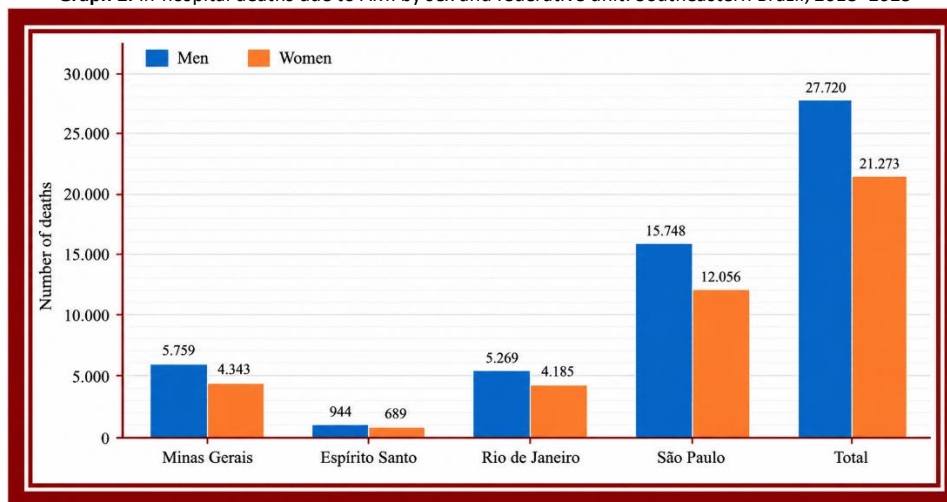
Graph 2 shows that, although men account for a higher absolute number of AMI-related hospitalizations and deaths, the in-hospital case-fatality rate is higher among women. Across the region, 27,720 deaths were recorded



among 362,794 male hospitalizations (case-fatality rate of 7.64%), compared with 21,273 deaths among 205,331 female hospitalizations (case-fatality rate of 10.36%)³. Women tend to experience AMI at older ages, when they may already have multiple comorbidities, such as hypertension, diabetes, and heart failure, which complicate in-hospital outcomes⁹. In addition, symptoms in women tend to be atypical, potentially delaying diagnosis and treatment initiation. Differences in access to or response to

invasive therapies, such as primary percutaneous coronary intervention and thrombolysis, may also contribute to mortality, as these interventions are essential for reducing deaths^{9,15}. Thus, although the healthcare system has made progress in AMI management, women remain the more vulnerable group in terms of in-hospital mortality. The annual trends in the mean length of hospital stay for AMI in the Southeast Region between 2018 and 2025 are presented in Table 3.

Graph 2. In-hospital deaths due to AMI by sex and federative unit. Southeastern Brazil, 2018–2025



Source: Brazilian Ministry of Health — Hospital Information System of the Brazilian Unified Health System (SIH/SUS)³.

Table 3. Mean length of hospital stay (days) for AMI. Southeastern Brazil, 2018–2025

2018	2019	2020	2021	2022	2023	2024	2025
17,6	16,5	8,1	8,7	10,0	9,5	7,3	5,8

Source: Brazilian Ministry of Health — Hospital Information System of the Brazilian Unified Health System (SIH/SUS)³.

Table 3 shows a downward trend in the mean length of hospital stay for acute myocardial infarction (AMI) in the Southeast Region of Brazil between 2018 and 2025. In 2018, the mean length of stay was 17.6 days, decreasing progressively to 5.8 days in 2025. This pattern suggests a process of optimization of hospital care, with shorter hospital stays potentially associated with the modernization of treatment protocols, more frequent use of interventional therapies, such as percutaneous coronary intervention, and faster clinical recovery. The most pronounced decline occurred between 2019 (16.5 days) and 2020 (8.1 days), coinciding with the expansion of specialized cardiology units and hospital reorganization during the COVID-19 pandemic.

Comparison across data sources shows consistency in the results: both scientific studies and official data from the Brazilian Ministry of Health indicate a sustained reduction in the length of hospital stay for AMI in the Southeast Region. The mean values reported in the articles (between 5 and 9 days) are consistent with the most recent averages in the public healthcare system (2022–2025), reflecting alignment between hospital practice and official epidemiological records. Taken together, these data indicate a trend toward shorter and more efficient hospitalizations, consistent with technological advances, improved healthcare service capacity, and the evolution of clinical management of AMI in the region.

Table 4 presents the frequency of the main risk factors recorded among AMI-related hospitalizations in the Southeast Region between 2018 and 2025, by sex, in absolute numbers and percentages. The analysis of Table 4 reveals an epidemiological profile characterized by chronic and metabolic diseases. Diabetes mellitus was the most frequently recorded risk factor in both sexes, reported in 208,586 men and 172,131 women, highlighting its association with the development of coronary events and the need for preventive interventions focused on glycemic control. Chronic kidney disease (CKD) and systemic arterial hypertension (SAH) were also highly represented: CKD was recorded in 50,022 men and 107,324 women, while SAH was recorded in 46,277 men and 55,489 women. The presence of these comorbidities indicates a complex clinical profile requiring comprehensive management to minimize complications during hospitalization. Although obesity was recorded less frequently (4,499 men and 31,249 women), it contributes to the development of other metabolic risk factors, such as diabetes and hypertension, reinforcing the interrelationship among cardiovascular risk factors. During the study period, 362,794 men and 205,331 women were hospitalized for AMI, demonstrating the substantial burden of these conditions and the importance of policies aimed at preventing and controlling chronic noncommunicable diseases in the Southeast Region.

Table 4. Risk factors recorded among AMI-related hospitalizations by sex. Southeastern Brazil, 2018–2025

Risk factor	Men (n)	Men (%)	Women (n)	Women (%)
Obesity	4,499	1,24	31,249	15,21
CKD	50,022	13,78	107,324	52,26
Diabetes mellitus	208,586	57,49	172,131	83,83
SAH	46,277	12,75	55,489	27,02
Total AMI-related hospitalizations	362,794	100,00	205,331	100,00

Note: CKD, chronic kidney disease; SAH, systemic arterial hypertension. Percentages were calculated using the total number of hospitalizations for each sex as the denominator; an individual patient may have more than one risk factor.

Source: Brazilian Ministry of Health — Hospital Information System of the Brazilian Unified Health System (SIH/SUS)³.

The integrated analysis of the studies and databases revealed a consistent epidemiological and healthcare pattern. Male predominance was identified among hospitalizations, accounting for approximately 60% of cases, whereas women presented higher in-hospital case-fatality rates and poorer medium- and long-term outcomes, particularly during the postmenopausal period. This sex-based difference was observed across all sources evaluated.

The state of São Paulo accounted for the highest absolute number of AMI-related hospitalizations and deaths, which may be largely explained by its high population density and greater cumulative exposure to cardiovascular risk factors. Among the demographic characteristics, the peak in hospitalizations occurred in the 60–69-year age group, a pattern consistent across the states of Southeastern Brazil and characteristic of the epidemiological transition toward chronic noncommunicable diseases.

In-hospital case-fatality rates varied from 6% to 12%, reflecting methodological differences among studies, clinical heterogeneity among patients, and variations in hospitals' healthcare capacity. A sustained reduction in the mean length of hospital stay was also observed, from 17.6 days in 2018 to 5.8 days in 2025, particularly pronounced between 2019 and 2020. This period coincided with hospital reorganization during the pandemic and the broader adoption of reperfusion strategies and early-discharge protocols.

Regarding risk factors, diabetes mellitus was the most prevalent comorbidity among hospitalized patients, followed by chronic kidney disease (CKD) and systemic arterial hypertension (SAH). However, data quality presented relevant limitations: approximately 30% of race and skin color records were classified as "Other/Not reported," hindering stratified analyses. Discrepancies in comorbidity coding and denominators across data sources were also detected.

Discussion

The results confirm the existence of significant sex-based disparities in the incidence and mortality of acute myocardial infarction (AMI). Although men experience a higher incidence at younger ages, probably due to greater exposure to tobacco, alcohol, and occupational risks, women experience poorer clinical outcomes^{9,12}. Higher mortality among women may be associated with later disease onset, multiple cardiometabolic comorbidities, and the high frequency of atypical symptoms, which can delay diagnosis and reperfusion. These findings reinforce the need for

targeted health education strategies and clinical protocols that facilitate early recognition of AMI in women.

The strong association between aging and hospitalizations reaffirms the central role of age as an epidemiological determinant of AMI. The peak in hospitalizations among individuals aged 60–69 years suggests that preventive interventions targeting middle-aged adults, particularly those aged 45–69 years, could substantially reduce future incidence. The decline in the number of cases among individuals older than 70 years raises important questions and may be related to cumulative mortality, underreporting, or barriers to accessing specialized services.

The substantial reduction in hospital length of stay indicates an accelerated process of modernization in healthcare delivery. The expansion of primary percutaneous coronary intervention, the consolidation of reperfusion networks, and the implementation of early-discharge protocols have contributed to shorter hospitalizations¹⁵. However, shorter hospital stays do not necessarily guarantee better long-term outcomes, as the absence of structured outpatient follow-up may increase the risk of readmission and recurrent cardiovascular events. These results highlight the importance of strengthening continuity of care and coordination across different levels of healthcare.

The comorbidity profile, characterized primarily by diabetes mellitus, CKD, and hypertension, underscores the influence of metabolic factors in the pathogenesis of AMI and the need to strengthen integrated primary prevention strategies. Inconsistencies in comorbidity records and the high proportion of missing data in the race and skin color field reveal structural limitations in information systems, which affect the accuracy of analyses and constrain evidence-based decision-making.

The comparison across studies demonstrated consistency in the main epidemiological patterns: male predominance among hospitalizations, higher mortality among women, a peak in the 60–69-year age group, and a high prevalence of metabolic comorbidities^{6,7,9–11}. However, the observed variation in case-fatality rates (6%–12%) likely reflects differences in access to reperfusion therapies, the availability of hospital resources, and clinical severity at admission. These findings reinforce the need for studies adjusted for clinical variables and the complexity of care.

From a public health perspective, these findings have direct implications for healthcare planning. Strengthening diabetes, hypertension, and obesity control programs could significantly reduce AMI incidence. Reducing



diagnostic delays among women and expanding reperfusion networks are critical measures for improving clinical outcomes. Likewise, standardizing health records is essential to ensure comparability and reliability of future studies.

Finally, the results open new avenues for research, including the impact of delayed reperfusion on mortality among women, the influence of hospital reorganization during the pandemic on length of stay and clinical outcomes, and the potential relationship between hospitals' technological capacity and their mortality rates. Studies employing multivariable models, survival analyses, and multilevel approaches will provide a better understanding of these phenomena and support more effective strategies to reduce AMI-related mortality in the region.

Final Considerations

This study characterized the epidemiological profile of patients affected by AMI in Southeastern Brazil between 2018 and 2025, identifying demographic, clinical, and social trends that reflect the current state of cardiovascular health.

The results showed a predominance of men among hospitalizations, although women presented higher in-hospital case-fatality rates, reinforcing the need for differentiated care approaches. This disparity may be related to the underrecognition of atypical symptoms, delayed diagnosis, and lower use of reperfusion therapies, all of which may compromise prognosis.

The age-specific analysis revealed a substantial increase in AMI-related hospitalizations beginning at age 40, with a peak among individuals aged 60–69 years, the group bearing the greatest burden of risk factors. The most prevalent comorbidities included hypertension, diabetes mellitus, CKD, and obesity, defining a complex clinical profile that requires a multidisciplinary therapeutic approach.

A sustained downward trend in the mean duration of hospitalization was also observed, suggesting improvements in the quality and efficiency of care, potentially attributable to the modernization of protocols, the expansion of specialized units, the training of healthcare teams, and the incorporation of new technologies.

Nevertheless, structural and social challenges remain. Rapid urbanization, work-related stress, inadequate diet, physical inactivity, and poor adherence to preventive treatments are relevant determinants, while regional inequalities in access to specialized care increase the vulnerability of certain population groups.

In conclusion, AMI remains one of the leading causes of death in Southeastern Brazil and constitutes a major public health problem. Addressing this burden requires integrated, intersectoral actions encompassing prevention, early diagnosis, timely treatment, and rehabilitation. Only through coordination across levels of care, effective public policies, and the promotion of healthy lifestyles will it be possible to reduce the incidence and mortality associated with AMI.

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