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The vaccine revolution (1904) and covid-19 (2020) in Brazil: Influences of urban and socioeconomic growth

La revolución de las vacunas (1904) y covid-19 (2020) en Brasil: Influencias del crecimiento urbano y socioeconómico

### RESUMO

**OBJETIVO:** apresentar as influências do crescimento urbano e das desigualdades sociais e econômicas no contexto das crises sanitárias de 1904 e de 2020 no Brasil. **MÉTODO:** É uma revisão integrativa da literatura que incluiu artigos publicados a partir de 2020, em português e inglês, disponíveis na íntegra. A seleção seguiu as recomendações do PRISMA e totalizou 13 artigos. **RESULTADOS:** Foi possível verificar a similaridade entre os dois contextos, especialmente nos aspectos das fragilidades políticas, econômicas, urbanas e sociais do país, bem como constatar que o processo vivenciado pelos brasileiros, durante a última crise, se constituiu reflexos de condições passadas. **CONCLUSÃO:** Existe a necessidade de um planejamento por meio da elaboração de políticas públicas, visto que, diante de uma crise são exigidas respostas imediatas e, as atitudes tomadas, quando assertivas, podem mudar o rumo da história e promover um futuro mais próspero para a nação.

**DESCRIPTORES:** Atenção à Saúde; COVID-19; Economia; Urbanização; Perfis Sanitários.

### ABSTRACT

**OBJECTIVE:** to present the influences of urban growth and social and economic inequalities in the context of the health crises of 1904 and 2020 in Brazil. **METHOD:** It is an integrative literature review that included articles published from 2020, in Portuguese and English, available in full. The selection followed the PRISMA recommendations and totaled 13 articles. **RESULTS:** It was possible to verify the similarity between the two contexts, especially in terms of political, economic, urban and social weaknesses in the country, as well as verifying that the process experienced by Brazilians during the last crisis was a reflection of past conditions. **CONCLUSION:** There is a need for planning through the development of public policies, since, in the face of a crisis, immediate responses are required and the attitudes taken, when assertive, can change the course of history and promote a more prosperous future for the nation.

**DESCRIPTORS:** Delivery of Health Care; Covid-19; Economy; Urbanization; Sanitary Profiles.

### RESUMEN

**OBJETIVO:** presentar las influencias del crecimiento urbano y las desigualdades sociales y económicas en el contexto de las crisis de salud de 1904 y 2020 en Brasil. **MÉTODO:** Es una revisión integradora de la literatura que incluyó artículos publicados desde 2020, en portugués e inglés, disponibles en su totalidad. La selección siguió las recomendaciones de PRISMA y totalizó 13 artículos. **RESULTADOS:** Se pudo verificar la similitud entre los dos contextos, especialmente en términos de debilidades políticas, económicas, urbanas y sociales en el país, así como verificar que el proceso vivido por los brasileños durante la última crisis fue reflejo de condiciones pasadas. **CONCLUSIÓN:** Existe una necesidad de planificación a través del desarrollo de políticas públicas, ya que ante una crisis se requieren respuestas inmediatas y las actitudes tomadas, cuando son asertivas, pueden cambiar el rumbo de la historia y promover un futuro más próspero para el país. nación.

**DESCRIPTORES:** Atención a la Salud; COVID-19; Economía; Urbanización; Perfiles Sanitarios.

RECEBIDO EM: 30/10/2021 APROVADO EM: 06/12/2021

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**INTRODUCTION**

In December 2019, the first case of a viral disease called COVID-19 was identified in central China, in Wuhan. Quickly, due to its high transmissibility and infectivity, the State of International Public Health Emergency was instituted by the World Health Organization (WHO) in January 2020, affecting thousands of people around the world. (1)

The viral disease has spread to all continents with a high number of deaths, development and complications, hitherto unknown, in addition to the lack of effective treatment and vaccine for control. Therefore, the main infection contingency strategy consisted of sanitary measures of isolation and social distance, with the aim of interrupting the chain of transmission. (2)

However, the imposition of staying at home was not feasible for the entire population, especially for those who provided essential services, lived in places with high population density and low residential infrastructure and who did not have employment relationships. In this context, the COVID-19 pandemic highlighted the social and urban inequalities in Brazil. (3)

It is worth mentioning that this is a scenario that combined a serious health crisis with socioeconomic and urban inequalities, the spread of false information, denialism and a population insecure about the health measures imposed by the government, which is not unprecedented in Brazil. A situation analogous to this happened

in 1904, known as the Vaccine Revolt. (4)

At the beginning of the 20th century, the city of Rio de Janeiro was the capital and largest city in the country, being considered the political, commercial and cultural center. (5) However, it added structural problems, had the urban space considered shortened and, geographically, it was surrounded by hills and marshy areas. Urban development took place in an uncontrolled way and presented problems such as the high concentration of people in the central neighborhoods and a large flow of travelers circulated through the city, favoring the proliferation of infectious diseases such as the Bubonic Plague, Yellow Fever and Smallpox, responsible for large epidemics, as well as a high death toll. (6-7)

The serious social and urban problems allied to the epidemics made Brazil an object of international pressure, compromising the port trade of Rio de Janeiro. (8) In this direction, there was a need to re-urbanize the capital as a policy to transform it, with the aim of eradicating diseases and urban beautification. It was in this context that the doctor Oswaldo Cruz started some actions with an impact on public health. (6)

In view of the above, it is possible to perceive a situational similarity that occurred in Brazil, in the years 1904 and 2020, where again socioeconomic and urban inequalities were decisive in the strategies for coping with health crises. The objective of this research was to present the influences of urban growth and social and economic

inequalities in the context of the health crises of 1904 (Vaccine Revolt) and 2020 (COVID-19) in Brazil.

**METHOD**

This is an integrative literature review, in which the six phases of the methodology were carried out. First, the theme was identified and the research question was delimited: what are the influences of urban growth and socioeconomic inequalities in the Vaccine Revolt and the COVID-19 pandemic?, using the PICO strategy for this.

Subsequently, the inclusion and exclusion criteria were chosen according to the guiding question. The following inclusion criteria were established: articles published in Portuguese and English, available in full, that had an affinity with the object of the research, published from the year 2020.

In the third stage, the information to be extracted from the selected studies was defined through the categorization of the studies.

In this sense, an initial search was conducted between May and July 2021 on the Virtual Health Library Portal and in search engines such as Google Scholar, using the combination of the descriptors: Health Care (Atenção à Saúde); COVID-19; Economy (Economia); Urbanization (Urbanização); Vaccine Revolt (Revolta da Vacina) and Sanitary Profiles (Perfis Sanitários) with the use of the Boolean operator "AND".

First, reading was performed in the order of title, abstract, descriptors. The listed studies that answered the research question were read in full and their references analyzed in search of additional studies. The publications selected as the study corpus were exported and analyzed using the EndNote<sup>®</sup>20 software, also used to identify possible duplicates. The selection followed the recommendations of the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) (figure 1).

In the fourth step, the included studies were evaluated through the critical analysis of the selected studies. In the fifth stage, the results were interpreted and in the last stage, the review was presented through the discussion of the learned knowledge.

## RESULTS

In the last two years, 73 articles were found that addressed the object of this study. After applying the inclusion criteria, only 13 articles were selected to constitute the corpus of this research.

Regarding the year of publication, seven were published in 2020 and six in 2021. Regarding the place where the studies were carried out, more than half of the articles (61%) were published by researchers from Southeast Brazil.

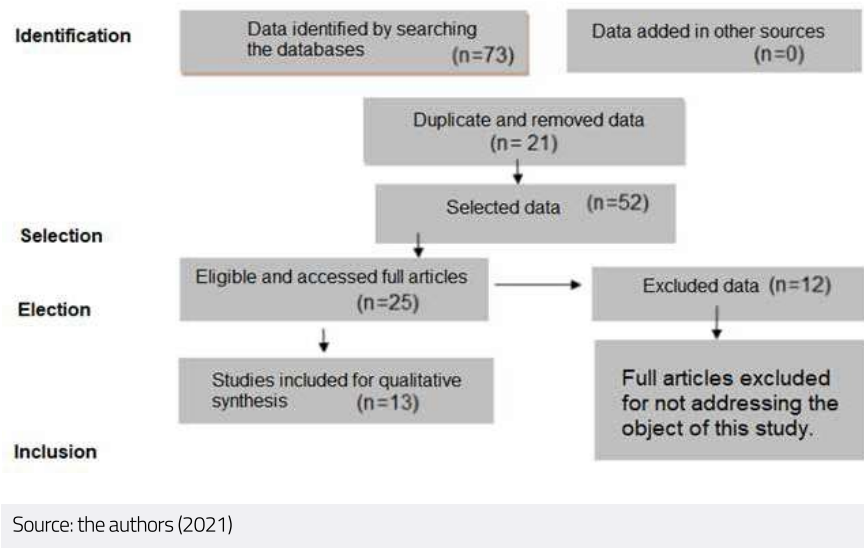
After reading the articles in full, two categories of analysis emerged that answered the objective of the research: the influence of urbanization during the health crises of 1904 and 2020 in Brazil (six articles) and the influence of socioeconomic determinants during the health crises of 1904 and 2020 in Brazil: a historical comparison (nine articles).

## DISCUSSION

### The influence of urban growth on the health crises of 1904 and 2020 in Brazil

The analysis of the studies showed that, in both periods, uncontrolled urban growth triggered several vulnerability factors that exposed the poorest population to illness from the virus. Such factors included the acceleration (1904) and comple-

Figure 1 - Flowchart of the Search and Selection Process of the Studies-adapted from PRISMA. Salvador-BA, 2021.



tion (2020) of the slum process, favoring the allocation of people in residences with precarious conditions, often without basic sanitation, and far from the main points of access to public health.

Urban development took place in an uncontrolled way at the end of the 19th century in RJ, mainly after the decadence of the coffee economy in the state, the declaration of the abolition of slavery and immigration. (9) Most of these people settled in the central area of the city, generating several urban problems, such as: accumulation of garbage in the streets, scarcity in water distribution and sewage collection, in addition to overpopulated tenements, which favored the proliferation of outbreaks of a series of infectious diseases, mainly yellow fever, smallpox and bubonic plague. (6)

Rapid urban sprawl and excessive increases in disease, crime and disorder demonstrate the approximate rates of social disorganization. In this context, President Rodrigues Alves, in partnership with Mayor Pereira Passos and doctor Oswaldo Cruz, at the time representing the General Directorate of Public Health, proposed changes that involved urban reform, the modernization of the port and basic sanitation. (10-11)

The process of re-urbanization of Rio de Janeiro was part of a policy of transformation of the city, with the aim of eradicating diseases and urban beautification inspired by the city of Paris. However, this project adopted measures that would harm the poorest population. (11) Following the ideology of sanitizing, sanitizing, ordering, demolishing and civilizing, the beginning of the urban reform in Rio de Janeiro aimed at the demolition of the old mansions, tenements and other buildings in the central region of the city and the relocation of the poor population that lived there, using the government's argument that the "bad customs" of these people contributed to the spread of diseases. (6)

These reforms affected, directly and indirectly, the life and housing of the poorest population who, after being evicted, migrated to the suburbs or settled in the hills closest to the city center. In this way, the process of expansion of favelas in Rio de Janeiro began, demonstrating that segregation offers the group and, therefore, the individuals who make up the group, a place and a role in the total organization of city life. (12)

Considering the above, it is understood that, in a historical perspective, urbanism

and urban space planning developed as a cause-effect relationship in the face of health crises and the spread of infectious diseases in the late 19th and early 20th centuries. (13)

The debate about housing reappears in the context of the COVID-19 pandemic, including under the hygienism line, ratifying the housing issue, that is, the factor referring to the urban condition of the population, which has an interface with people's vulnerability to the coronavirus. There is a variation in the mortality rate, within the same city, depending on the location and housing conditions, access to public services and income distribution of the population. (14)

Regarding how to prevent contagion and reduce the spread of the virus, the main orientation of health authorities at the municipal and state level was that people should avoid contact, through isolation and social distance. These measures were implemented, considering that staying at home would reduce the contamination rate, benefiting everyone and ensuring that the Brazilian health system had the means and capabilities to care for the sick. (15) However, isolation has become unfeasible for a large part of the population, who live with the reality of houses without many rooms, shared with large families and the lack of housing. (11)

Likewise, the health situation of the poorest neighborhoods, where a large part of the population of the cities resides, is often a limiting factor, even an impediment, for isolation, social distancing, as well as the performance of hygiene practices. The houses do not have empty rooms for the isolation of possible sick people, and sometimes there is not even running water for washing hands. (16) This reinforces that the creation of more hygienic customs involves the availability of infrastructure for this purpose. (17) Vulnerability to the COVID-19 virus is geographically marked, because when it settles in the poorest areas, where people need to be exposed, failing to comply with isolation, the disease tends to achieve much higher morbidity and mortality. (18)

In this way, the new ways of thinking

about urbanism and the structure of cities must be linked to the fight against the spread of diseases, in order to avoid contagions through the reorganization of space and

these examples are disregarded, the result that is observed, especially in poorer countries, in their peripheries and slums, with precarious sanitation conditions, is the rapid proliferation of infectious diseases.

### The influence of socioeconomic determinants during the health crises of 1904 and 2020 in Brazil

This study discusses how the historical presence of inequality in Brazilian society influenced the health crises of 1904 and 2020, by determining the groups most vulnerable to exposure to the virus and illness. It should be noted that the condition of poverty exposes the individual to precarious living conditions and favors viral contamination, as well as hindering access to health services.

The urban modernization project carried out in RJ at the beginning of the 20th century aimed to extinguish the tenements. In these constructions, several families shared small rooms, currently known as precarious collective rental housing, as they compromised the city's sanitary issue. (6) Due to the unsanitary conditions, these collective dwellings favored the spread of diseases. These tenements were vacated and soon demolished, the wetlands were filled in and rubbish removed from the streets. A famous example was the "Cabeça de Porco" tenement, which housed more than 2,000 inhabitants. (19)

Reurbanization has hurt the poorest residents who have been displaced to more distant places or forced to pay higher rents. These people who lived in the center migrated to devalued parts of the city, mangrove regions, swamps and hills further away from the central region. Thus, wooden shacks and shacks were installed in poor health and hygiene conditions, giving rise to Rio's favelas, while the new center remained healthy and orderly. (9,19)

Parallel to this, the State established the compulsory vaccination of the population against Smallpox, without providing the necessary information, opening space for the dissemination of false news and culminating in the Vaccine Revolt. In one week, the city of RJ was practically devastated

**Regarding how to prevent contagion and reduce the spread of the virus, the main orientation of health authorities at the municipal and state level was that people should avoid contact, through isolation and social distance**

the use of sanitary solutions. It can be said that, historically, epidemics were responsible for the modification of many cities around the world. On the other hand, when

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with an attempted coup against President Rodrigues Alves, by a disorderly rebellion, triggered by the publication of the regulation on mandatory vaccination. (20)

The spread of fake news, now called "Fake News" also occurred in the COVID-19 pandemic, in 2020. The president himself became a poster boy for proven ineffective medications for the disease and questioned the vaccination scheme, until then, only strategy to control the mortality rate triggered by the coronavirus infection. (20)

Thus, it is inferred that historically, social and economic inequality represents one of the main aggravating factors for the spread of infectious diseases in Brazil. Currently, it can be said that the situation of vulnerability and socioeconomic inequality contributed to the increase in contamination and death rates by COVID-19. Likewise, the pandemic has worsened social inequalities, as world poverty rates have increased due to the health crisis, leading 580 million people to live below the poverty line. (21)

It should be noted that social isolation also had an impact on the income of informal workers and had an impact on salaried workers with layoffs or reduced income due to shorter working hours. (22) The base of the Brazilian income pyramid is the most vulnerable to the public health crisis and they will have their incomes affected by 20% more than Brazilian families from other social classes. (23)

The National Household Sample Sur-

vey (PNAD - Pesquisa Nacional por Amostra de Domicílios) pointed out that during the pandemic, 19.5 million people had a reduction in the effective income received from work, and 43.6% of households lacked emergency aid. There was an increase of 3.9% in the unemployment rate of the population, between the first weeks of May and the fourth week of September 2020. (24) Likewise, there was a drop in labor income for all social strata in the second quarter of 2020, but more significant among the poorest 40%. (25)

Even after more than a century, it is clear that socioeconomic inequalities are still determining factors in the health-illness process in Brazil. This confirms that the richest part of society has better means and conditions to prevent and protect themselves from infectious diseases, compared to the poorest part, more exposed to diseases and, consequently, to death.

The Unified Health System (SUS) is the result of a great achievement for the country's social security, of universal character, which guarantees the access of any citizen to health promotion and protection services, with the immunization strategy and health education measures, as well as the treatment and recovery of diseases. However, the unequal distribution of federal government resources by regions and the lack of specialized professionals in some cities, potentiate social inequality, especially in the epidemic context. (20)

## CONCLUSION

This literature review addressed the historical character between the health crises experienced in Brazil in the years 1904 and 2020, in addition to the influence of socioeconomic determinants and the urbanization process in the worsening of the disease transmission chain. It was possible to verify the similarity between the two contexts, especially in the aspects of the country's political, economic, urban and social weaknesses, as well as to verify that the process experienced by Brazilians during the last crisis was a reflection of past conditions.

It can thus be seen that infectious diseases had an important influence on urbanization, on the historical and social construction of Brazil. The 2020 pandemic revealed all the insufficiencies of the country, evidenced by the difficulty of access to health and by a large number of people living in poverty, without basic sanitation, even to carry out their own hygiene.

Finally, the articles found in this review, despite being scarce, made it possible to visualize the dimension of this problem and pointed to the need for planning through the elaboration of public policies that protect the most vulnerable population, since, in face of a crisis immediate responses are required and the attitudes taken, when assertive, can change the course of history and promote a more prosperous future for the nation.

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