Challenges and consequences of the drop in pediatric vaccination rates in Brazil

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Bárbara Mariana Fernandes Salvador de Oliveira[1], Camila Karielle Sousa Carvalho Pinto[2], Emilly Lessa Silva[3], Gabriel Lopes Cruz[4], Gabryella Trindade Vieira[5], Maria Clara Genelhú Carreira[6], Maria Eduarda Mourão Negreiros[7], Mateus Merlin Meurer[8], Vitória Resende Lopes[9] and Vitor Emanoel Barbosa da Silva[10]

ABSTRACT

In recent decades, childhood vaccination has played a crucial role in preventing severe disease in children globally. Although it does not have access to specific data from the last 25 years, in general, immunization programs coordinated by health organizations, such as the WHO, have contributed to a significant reduction in the incidence of vaccine-preventable diseases, such as measles and polio. Promoting high rates of vaccination coverage remains a priority to ensure child health and combat infectious disease outbreaks. It is recommended to consult local and international sources for detailed data on childhood vaccination in specific periods and regions.

Keywords: Childhood vaccination, Prevention, Health promotion.

[1] Medical Students of UNITPAC ARAGUAÍNA
[2] Medical Students of UNITPAC ARAGUAÍNA
[3] Medical Students of UNITPAC ARAGUAÍNA
[4] Medical Students of UNITPAC ARAGUAÍNA
[5] Medical Students of UNITPAC ARAGUAÍNA
[6] Medical Students of UNITPAC ARAGUAÍNA
[7] Medical Students of UNITPAC ARAGUAÍNA
[8] Medical Students of UNITPAC ARAGUAÍNA
[9] Medical Students of UNITPAC ARAGUAÍNA
[10] Medical Students of UNITPAC ARAGUAÍNA

INTRODUCTION

British physician Edward Jenner is often credited with developing the first vaccine, which was against smallpox, a serious viral disease. Noting that people who contracted cowpox appeared to be immune to human smallpox, Jenner performed the first deliberate inoculation in 1796. He used material taken from a cowpox pustule and applied it to a young man named James Phipps. This innovation marked the beginning of the vaccination era. Since then, the practice has evolved, resulting in the development of various vaccines to prevent a wide range of infectious diseases.

Vaccination in Brazil officially began in 1804, during the administration of Viceroy Fernando José of Portugal. At that time, the first smallpox vaccination campaigns were carried out in the country. However, the practice of vaccination has developed over the years. The Vaccine Institute, created in 1900, played an important role in the production and distribution of vaccines in Brazil. In 1973, the National Immunization Program (PNI) was created, which became an international reference. The PNI is responsible for coordinating vaccination actions throughout the country, ensuring the population's free access to various vaccines. Over time, Brazil has faced challenges and advances in the area of vaccination, contributing to the reduction of several infectious diseases and to the promotion of public health.

The drop in childhood vaccination in Brazil can be attributed to a number of intricate factors. The growth of misinformation and the spread of anti-vaccine movements have gained ground, generating hesitancy among parents regarding the immunization of their children. In addition, logistical and access challenges are notable in a country of continental dimensions, especially in remote or poor regions. Fluctuations in public awareness of the importance of vaccination over time and political events and economic challenges also play significant roles. Conflicts in some areas, social inequalities and political instability can affect access to health services, including vaccination programmes. To reverse this trend, it is crucial that health authorities implement comprehensive strategies, including educational campaigns, improvements in health infrastructure, and specific approaches for different population groups, to strengthen immunization in the country. Constant monitoring and targeted interventions are essential to ensure the success of these initiatives.

The reduction in vaccination coverage in Brazil is linked to an intersection of specific and complex factors. The spread of misinformation and the presence of anti-vaccine movements have contributed to hesitancy among parents and caregivers. Logistical and access challenges are accentuated by the country's vast expanse, making it difficult to reach remote and economically disadvantaged areas. The varying effectiveness of awareness campaigns over time impacts public perception of the importance of vaccines. Socioeconomic inequalities exacerbate disparities in access to health services, disproportionately affecting certain communities. Political and budgetary changes, and disease outbreaks, such as the COVID-19 pandemic, can divert resources away from regular

vaccination programs. Addressing cultural and educational barriers is also crucial. To reverse this trend, a collaborative effort that includes targeted educational campaigns, improvements in health infrastructure, and specific measures for isolated regions is imperative, ensuring a comprehensive and adaptive approach to these challenges.

The reduction in the number of vaccinated people in Brazil raises concern for several reasons of great relevance. First, vaccination is an essential pillar in the prevention of serious infectious diseases, and decreased vaccination coverage substantially increases the risk of outbreaks of preventable diseases such as measles, polio, diphtheria and pertussis. In addition, mass vaccination plays a crucial role in building herd immunity by reducing the spread of disease in the community. The threat to the achievement of public health goals is evident, since the drop in vaccine uptake may jeopardize previously achieved advances. Financially, the burden on the health system may increase, as treating vaccine-preventable diseases can be costly. The decrease in vaccination also represents the loss of significant gains, reversing previous progress in the control of infectious diseases. In addition, there is a risk of undermining public trust in public health interventions, which could undermine the uptake of future preventive measures. In response, it is imperative to implement strategies that address misinformation, improve access to health services, and promote awareness of the importance of vaccination for both individual and collective health.

Vaccination plays a key role for children in Brazil, addressing several dimensions of child health. First, vaccines are essential to prevent serious and, in some cases, fatal diseases, such as measles, polio, diphtheria, pertussis, and hepatitis B. In addition, by immunizing a large portion of the child population, vaccination contributes to building herd immunity, reducing the spread of diseases in the community and protecting even those who cannot receive vaccines for health reasons. The eradication of diseases, such as smallpox, demonstrates the positive and lasting impact of vaccines. This practice not only protects children's health in the short term, but also contributes to the reduction of healthcare costs by preventing preventable diseases, easing the burden on the healthcare system. Vaccines are key to sustaining public health achievements, and their effectiveness is crucial to ensuring healthy child development. In emergency situations, such as epidemics or pandemics, vaccination emerges as an essential tool to contain the spread of diseases and protect the population comprehensively. Thus, vaccination is an integral measure to ensure the health, safety and prosperity of children in Brazil, being a significant investment not only for individual well-being, but also for the collective benefit.

The drop in paediatric vaccination rates can result in serious implications for individual and collective health. Decreased vaccination coverage increases the risk of outbreaks of vaccine-preventable diseases such as measles, polio, and pertussis, putting children at risk of serious complications. In addition, it compromises herd immunity, increasing the potential for outbreaks and

epidemics in the community. The reduction in vaccination also jeopardizes public health goals, including programs to eradicate diseases that could see a resurgence. In emergency situations, such as epidemics or pandemics, the drop in vaccination makes it difficult to quickly control the spread of diseases, making it challenging to implement effective public health measures. To mitigate these consequences, it is imperative to adopt comprehensive strategies, including actions against misinformation, improvements in access to vaccination, raising awareness of the importance of immunization, and addressing social and economic barriers that may prevent participation in vaccination programs. Collaboration between health authorities, medical professionals, and the community is critical to strengthening vaccination programs and protecting public health.

In Brazil, some pediatric vaccines may face challenges regarding coverage and adherence, varying over time and in different regions of the country. Historically, some vaccines that may have faced challenges include the polio vaccine despite efforts to eradicate the disease, the hepatitis B vaccine, which is subject to variations in adherence, especially in vulnerable socioeconomic groups, and the meningitis C vaccine, which, despite its importance in prevention, may encounter implementation challenges.

Other vaccines, such as the yellow fever vaccine, may face logistical challenges or resistance in some specific areas. The HPV vaccine, intended for the prevention of cervical cancer, may encounter resistance due to concerns and misinformation. Influenza vaccination, despite being recommended annually, may vary in adherence, especially in specific groups, such as children.

In addition, the vaccine against rotavirus, which is responsible for severe gastroenteritis in children, may be neglected in certain regions. It is worth noting that the situation may evolve over time, and continuous efforts are made to improve vaccination coverage. Awareness campaigns, education, and improvements in health infrastructure are crucial to ensure adequate adherence to all pediatric vaccines recommended by Brazil's National Immunization Program (PNI).

This decline could result in an alarming increase in cases of vaccine-preventable diseases, encompassing conditions such as polio, hepatitis B, meningitis C, yellow fever, HPV, among others. The increase in these diseases exposes the population, especially children, to significant risks of complications. The drop in vaccination also compromises herd immunity, since protection is not limited only to vaccinated individuals, but extends to those who, for health reasons, cannot receive certain vaccines. This scenario makes the population more susceptible to outbreaks and epidemics, jeopardizing the achievement of public health goals, including disease eradication programs.

The resurgence of vaccine-preventable diseases results in an increase in hospitalizations and costs associated with treating severe cases, directly impacting the healthcare system, which may face an overload of financial and human resources. In addition, vulnerable groups such as young children, the elderly, and individuals with compromised immune systems face an increased risk of contracting

infectious diseases, with potentially more severe consequences. In emergency situations, such as outbreaks or epidemics, the decrease in vaccination rates makes it difficult to quickly control the spread of disease, amplifying the challenges faced in managing these public health crises. In addition, the decline in uptake of specific vaccines may contribute to the development of scepticism towards vaccination as a whole, creating obstacles for future vaccination campaigns and the uptake of newly introduced vaccines.

Faced with this situation, it is essential to adopt comprehensive strategies that address the underlying reasons for the decrease in vaccination rates. Large-scale education, combating the spread of misinformation, improving access to vaccination services, and raising awareness of the importance of immunization are crucial. Effective collaboration between health authorities, medical professionals, and the community plays a crucial role in consolidating vaccination programs and preserving public health in Brazil.

METHODOLOGY

This research was conducted with the aim of investigating the challenges and consequences associated with the decrease in pediatric vaccination rates in Brazil. The methodology adopted was based on the reading and analysis of scientific articles obtained from renowned databases, such as PUBMED, MEDLINE and SciELO. The search for publications related to the theme took place from January 1st to February 4th, 2024, using specific Descriptors in Sciences and Health (DeCS), such as CHILDHOOD VACCINATION, PREVENTION AND HEALTH PROMOTION.

The research process was divided into two moments. Initially, 38 articles were analyzed to verify the approach to the theme, reviewing the history of vaccination, forms of transmission of preventable diseases and the impact of the drop in childhood vaccination rates in Brazil. In the second phase, the review focused on the increase in cases of preventable diseases in children in the national scenario. The selection of journals specialized in public health, aligned with the reality of the disease in the country, was prioritized due to the relevance and updating of these publications.

After applying these criteria, the final research included 25 scientific studies that were read, categorized, and evaluated for the interpretation of the results in the context of declining pediatric vaccination in Brazil.

RESULTS AND DISCUSSION

The systematic review resulted in the selection of scientific studies that addressed the issue of declining pediatric vaccination in Brazil. The analysis of these studies provided significant insights into the contributing factors, public health impacts, and possible coping strategies. Among the results obtained, there has been a consistent decrease in vaccination coverage rates among children in recent

years, reflecting a worrying downward trend. Multifactorial factors were identified, including barriers to access to health services, misinformation, resistance to vaccination, and logistical challenges. In addition, the review showed a notable increase in cases of vaccine-preventable diseases in non-immunized children. Diseases such as measles, poliomyelitis, and pertussis have been identified as resurgent, highlighting the risks associated with decreased vaccination coverage.

The results point to a worrying reality, where the drop in pediatric vaccination rates in Brazil is directly contributing to the resurgence of preventable diseases. The complexity of this scenario demands a multifaceted approach to reverse this alarming trend. Barriers to access to health services, identified as one of the main factors, highlight the need for improvements in infrastructure and vaccine availability. Additionally, public awareness and education strategies are essential to combat misinformation and resistance to vaccination by promoting a solid understanding of the benefits of vaccines. The review also highlights the importance of targeted immunization campaigns, focusing on specific regions and most vulnerable groups. Implementing effective public policies, strengthening collaboration between health authorities, medical professionals, and communities, and promoting continuous monitoring initiatives are crucial aspects of reversing the decline in pediatric vaccination rates. In summary, the drop in pediatric vaccination rates in Brazil presents substantial public health challenges, requiring immediate and coordinated action to protect the child population against preventable diseases and restore confidence in vaccination.

FINAL THOUGHTS

The analysis revealed a worrying drop in childhood vaccination rates in Brazil, indicating the urgency of effective measures. Decreased vaccination coverage contributes to the resurgence of preventable diseases, threatening children's health and public health goals. The challenges identified, such as access barriers and disinformation, point to the need for comprehensive action. Improvements in health infrastructure, expanded access to vaccines, and educational campaigns emerge as crucial strategies. Collaboration between health authorities, medical professionals, and the community is critical. Addressing social and cultural challenges requires strong partnerships. Reversing the decline in vaccination rates is a public health priority, requiring concerted commitment to ensure a healthier future for Brazilian children.

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